

SUPPLEMENT.

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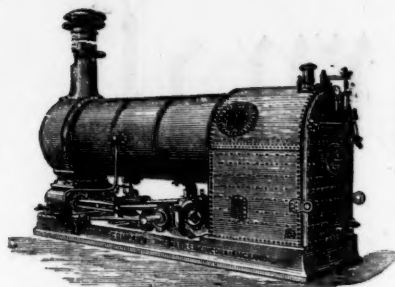
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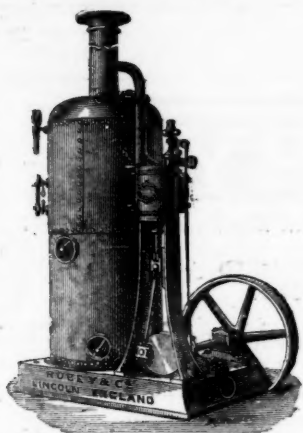
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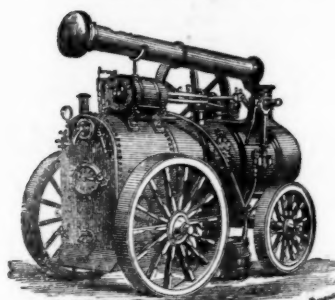
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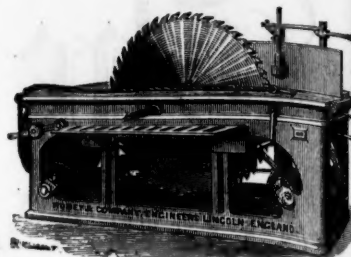
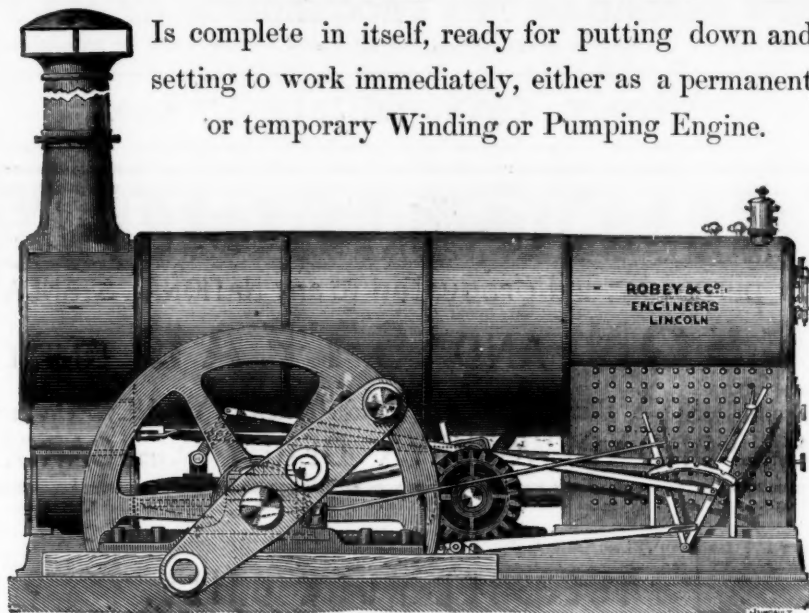
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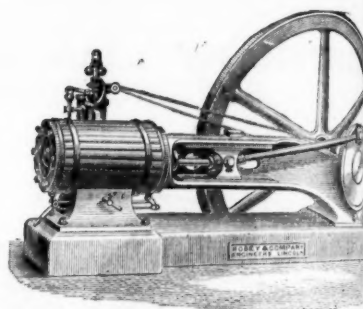
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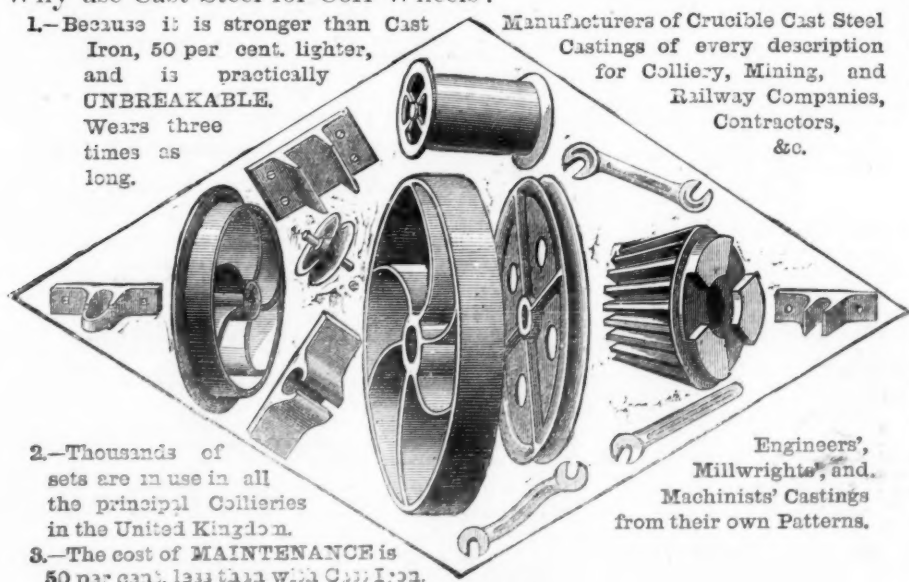
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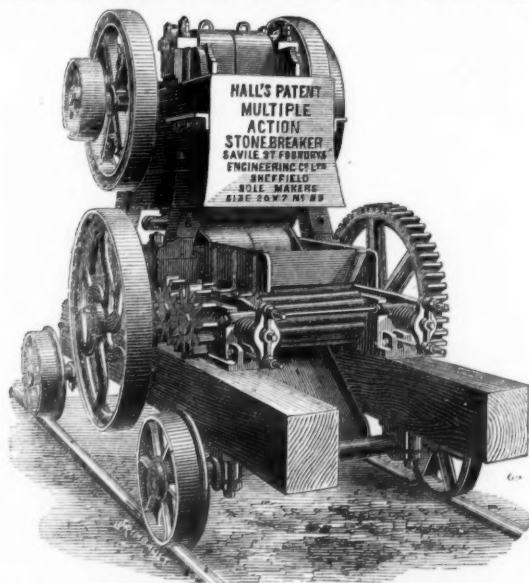
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Original Correspondence.

ON COMPRESSED AIR.

SIR.—The introduction of locomotives driven by compressed air, Colonel Beaumont's principle, is likely to bring about important advances in the use of this motive power both for locomotives and stationary engines. Compressed air locomotives have been tried on the tramways of Paris and also at Glasgow, without the attainment of any satisfactory result. Colonel Beaumont, by his improvements, appears to have solved the problem of obtaining efficiency with economical results, first by compressing air to a very high pressure (about 100 lbs. to the square inch), and then using it expansively in two or three cylinders successively, as in his experimental engine now on trial at Woolwich on 4-8½ ft. gauge, the air escaping from the last cylinder at or about atmospheric pressure. When air is used for driving underground or tunnelling machinery it is generally considered by engineers that the efficiency is low compared with the steam power in the boiler, but the convenience of air-driven machinery for such purposes has rendered its adoption in many cases without an alternative, and outweighs the question of cost.

In Colonel Beaumont's engine he endeavours to keep the air cool during compression, and heats the expanding air in the working cylinders. For the first, instead of the spray method of cooling the air in the compressor, he surrounds the latter with cold water. It may be observed that this is a commonly adopted form of cooling the air in the compressing cylinder, but it has hitherto not been attended with efficiency, owing to the fact that air is a bad conductor of heat, and the cooling effect of the cylinder does not affect the temperature of the body of air within it. The three working cylinders are enclosed with a steam jacket, steam being admitted at 212° Fahr., or atmospheric pressure.

The arrangement he has adopted for cooling the air in the compressor is simple, though it is not so efficient as the spray injection method, but it is the better for securing air tightness in the cylinders. He has succeeded in forcing compressed air into a reservoir at 1000 lbs. per inch pressure; the air retains the same pressure for some hours after the filling of it. The reservoir consists of a number of strong tubes, connected to each other by cross tubes. The air is admitted into the first cylinder at full pressure, is cut off quickly, then expanded in the second and third cylinders down to atmospheric pressure. Colonel Beaumont has been engaged for four years in experimenting in this department of engineering. The engine is constructed with the view of utilising the whole of the power stored up in the reservoir, however high the pressure may be. The engine weighs 1½ tons, and is designed to run 20 miles with one charge of compressed air. Its performance has been the hauling of 22 tons over a length of 11 miles, and a load of 12 tons over a length of 20 miles with a single charge of air.

Colonel Beaumont claims several advantages as possessed by his locomotive for employment on underground railways or on street tramways over steam locomotives—the absence of steam, fire, smoke, and noise, besides the leakage of tubes and the risk of explosion from defective management of boiler is avoided. And in contrast to the useless locomotive he gets rid of steam and the condenser. The further advantages are urged of using air at a high pressure, and the steam used is generated in a stationary boiler. The steam engine has condensing apparatus attached to it, and by this means steam is produced more economically than could be when an ordinary locomotive is used.

On the score of economy in the use of engines driven by compressed air nothing definite has yet been made out. In the use of the steam-engine by itself there is only the friction of one mechanism driven by the steam of the boiler. But with the compressed air system two additional mechanisms are required. There is, first, the steam-engine to drive the compressor; second, the compressor itself; and third, the locomotive or stationary engine, as the case may be, to which the power is applied. The loss from friction in the latter between the working cylinders and the steam engine must be considerable. When to this is added for underground purposes the loss by air friction in pipes, and the loss by undue heating during compression, and cooling during expansion, there would thus in many cases be considerable reduction to be made from the original power expended. In some calculations on the useful effect obtained by compressed air machines 30 per cent. has been stated as the ultimate power realised, or a loss of 70 per cent.; however, where an efficient method of cooling the air in the compressor and of heating it in the working cylinders has been adopted, a much better result than this can be attained, probably 50 to 60 per cent. of useful effect would be nearer the mark.

For underground purposes compressed air is used under a variety of circumstances. It is used somewhat extensively in the mines of the North of England, the Midland Counties, and in South Wales, being applied in driving coal cutters, hauling engines, and underground pumps. But in the first named district steam engines are used much more extensively, being most frequently placed near the bottom of the shaft, and for hauling purposes are connected with wire ropes, by means of which the train of wagons is conveyed to the distance of two and sometimes three miles from the shaft. In such circumstances there must be great loss arising from the friction of the two ropes, more particularly where the roadway is much curved. This amounts in extreme cases to 70 per cent. of the original power. To substitute engines placed at the extremity driven by compressed air for the hauling ropes would involve the laying of pipes from a compressor at the top of the shaft to the air engines fixed at the extremity of the mine, and the fixing of air compressing machinery. The question to be decided here is, would the duration of the mine and the economy of the proposed system in lieu of hauling by ropes warrant such an outlay? It should be observed that it is seldom a steam engine is placed in the mine at any considerable distance from the shaft; if it were the intake air would be heated, and the difficulty of getting rid of the exhaust steam would be great. These are sufficient to make such an arrangement inadvisable. With regard to compressed air machinery the exhaust air acts beneficially in assisting and cooling the ventilating current. This and other advantages to a great extent outweigh all other considerations.

Hitherto the prevailing opinion has been that low pressures and large cylinders give the best results in economy. With pressures up to 30 lbs. it has been considered that the air can be more easily kept cool, and better results obtained than with high pressures. But the results of recent experiments with compressed air will probably be that the pressures will be much increased provided that this is accompanied by an efficient system of cooling in the compressor. The question of heating the air in the working cylinders so as to prevent the formation of ice at the outlet passages has been sought to be solved by mixing steam with the air, also by jets of gas, but these are not always practical methods of overcoming the difficulty. Again, if the working cylinder is jacketed and heated with hot water or steam the advantage would not be great, as has been stated in the opposite condition of cooling the compressor. Large exhaust valves, and not expanding the air to an extreme in the working cylinder, have been found sufficient means to prevent the formation of ice at the ports. This difficulty is more easily got over in cases where the air engine is near to the compressor, and where it is probable the compressed air is taken into the working cylinder at a temperature higher than the atmosphere.

An important matter to be observed is to reduce the temperature of the air before entering the compressor. Instead of drawing the air from a warm engine room it should be refrigerated before it is drawn through the inlet valves, and thus the temperature in the compressor would be kept down. The inlet valves, when large, are beneficial in keeping down temperature, and also in getting a full supply of air at atmospheric pressure. In some situations it is possible that the compressed air before being utilised in the working cylinders might be so highly heated as to equalise the loss from the decrease in temperature after compression, and would also have the advantage of preventing the formation of ice and constriction of the exhaust passages.

The usual arrangement for compressing air is to place the com-

pressor in line with the steam cylinder; if the cylinder is single, and works expansively, the effect will be that at the beginning of the stroke the greatest amount of power will be exerted in the steam cylinder, while it is least required in the compressor. At the end of the stroke the opposite effect will take place. To make a more workable arrangement it is better to place the cylinders side by side and work the pistons by cranks from a fly-wheel shaft; the greatest power of the steam cylinder could then be exerted when the compressor piston was at the end of the stroke. The steam engine would then be in a position to do its work effectually in overcoming friction, drawing in air, compressing it, and expelling it through the outlet valves, the receiver, and the supply pipes to the working air cylinders.

It is noteworthy that no definite information as to the useful effect got from compressed air engines has yet been made known. Experiments on this point by engineers would form a basis for the construction of tables of the results obtained at various collieries, and also afford means of selecting the best form of air compressor and engines for underground hauling purposes. Another point to be observed is that a rapid or adiabatic compression of air produces great heat and a higher pressure than is due to mere compression, whereas a slow or isothermal compression follows Boyle's law, the principle of which is that the pressure increases inversely as the volume diminishes; in the latter case no heat is generated to intensify the pressure.

M. E.

DUTY OF ENGINES.

SIR.—I have been at a loss to account for the falling off in the duty (so called) of the steam-engines, as reported by Mr. Lean. In most things in this age there is progression; why in the effective power of our steam-engines should there be retrogression? I well remember seeing in the newspapers—perhaps 40 years ago—that some engines—in particular Taylor's at United Mines—were reported as doing a duty of 80 or 90 millions—i.e., lifting that number of pounds 1 ft. high by the combustion of one bushel of coal. At the present time 60 millions is, I think, the highest number reported. Perhaps some engineer can explain to your readers the anomaly how, despite all the improvements made in our machinery, in point of economy we are worse off than we were half a century ago.

July 12.

R. SYMONS.

SUPPORTING ROOFS OF COAL SEAMS.

SIR.—A suggestion has been made by Mr. G. S. Wallace, of Seaham Harbour, which might probably be availed of in many mines other than coal mines, and would prove much more durable and economic. It need scarcely be said that in collieries the roofs are usually kept up with chocks and supports, which being of wood are liable to become decayed, or in some instances to shrink and leave the work unsupported, or the chocks by improper usage become worn out of shape, and the uprights not obtaining thereby a proper bearing become unsteady and dangerous to life. To remedy these defects he constructs a number of hollow brick-like castings. The shell is perforated with suitable holes, bolt holes or hand, so that a bar or bolt may be passed through any of them either transversely or longitudinally. When employed, they may be built up from the floor of the excavation to the roof in the manner of bricks, either in open or close order as the locality or the circumstances of the case demand; where great stability is required, they may be laced or bound together by a bolt and nut. In some cases these hollow brick-like bodies may have but five sides instead of six, as is the case with bricks.

Now in many cases, and especially in Cornwall and Devon, bricks of this kind could, I should think, be made much more cheaply than timber could be imported from Norway, and as they would never rot or shift working places ought to be much safer than at present. I do not altogether agree with Mr. Wallace as to the method of putting the bricks together, because bolts and nuts are not only difficult to put in but are also liable to rust, and burst the bricks asunder. If, however, the bolts were made of the same materials as the bricks, the whole could be fastened together as solidly as a beam, and would require no subsequent attention.

ADVENTURER.

July 13.

COLONEL SHAKESPEAR ON "SAFETY LAMPS."

SIR.—The account of the Lundhill Colliery explosion about 20 years ago, when near 200 men were killed, is to the effect that explosions followed explosions for three days. That the ground trembled as with an earthquake, and that the shaft vomited flames. Recently when I was down near the Tyne a "blower" appeared, with 460 lbs. on the square inch, which is the same sort of thing probably that causes all the explosions that are on a vast scale, when nobody is even left to tell the tale.

Those occurrences, together with some experience with an artificial "blower," have caused me to reflect on how such can be successfully met. That such storms have occurred and will occur again is certain, and it is just as certain that the safety lamps of the day are no more equal to them than is a crazy craft in a hurricane. I have, therefore, come to three conclusions, which are as follows, and I would condemn every lamp of whatever make that does not fulfil them:—1. The oil must not escape on the lamp falling over, nor must there be charred wick to get on the gauze or ventilator.—2. It must be rapidly self-extinguishing both as to wick-flame and burning gas, whether the gas be in large or small proportions and moving at a high or low velocity.—3. The gauze or ventilator must be so planned that it cannot be injured by accident or stupidity. Those three conditions are quite compatible with excellent light and all other good qualities.

J. D. SHAKESPEAR.

Barons Court, July 14.

THE LONDON AND PARIS COAL SUPPLY.

VIA BOSTON DEEPS—THE GRAND FUTURE OF THE GREAT NORTHERN RAILWAY COMPANY.

SIR.—Permit me to supplement my lengthened correspondence in last week's Journal with the evidence of a leading Silkestone coal-owner before the Railway Commissioners on July 6—that the Notts and Derbyshire coal is supplanting the Wallend and Silkestone in the Metropolis. In two daily contemporaries of this morning is announced the closing of a leading Silkestone colliery. The most opulent nobility are using second-class coal from the kitchen range to their reception "salons." A leading coal factor stated before a Parliamentary Committee—"The bulk of the consuming public won't look at relative value of the coal; they simply buy what is cheap, not what is good." The Sheffield and Rotherham Independent of July 10 states an extensive contract has been closed this week for the best house coal in the Barnsley district for Manchester at 5s. 6d. per ton in summer and 6s. in winter, less commission. It was stated before the Railway Commissioners last week that one colliery is in the habit of stacking 20,000 tons of coal, which the proposed undertaking will be the only means of alleviating by having an assured profitable outlet for household as well as steam coal. I reiterate my former statement that the transit via Boston Deepes admits of the purchase at the pit's mouth of household as well as steam coal at 8s. per ton, the former for London and the latter for Paris, &c., on the basis of the Great Northern quoted rates to Boston for a single truckload. Let all hitherto prevailing supine inaction of the inland coalowners and Great Northern shareholders simultaneously with their oblivion of the imperative necessity of the association of capital to triumph over insurmountable difficulties of partial individual efforts in the impending organisation be cast off, and let them give their combined financial support to an undertaking which will purchase their output of house and steam coal at a remunerative price at the pits, and give the Great Northern an infinitely larger net receipt at their quoted rates, which the Hull, Barnsley, and West Riding Junction Railway, now in Parliament, undertakes to carry at 1-39th part, or a trifle in excess of one-third, under the Great Northern rates for equal mileage, with much worse gradients than by the Great Northern. The general manager of the Great Northern gave evidence on said railway bill on July 1, respecting the working of coal traffic at 0-25d. per ton per mile, by stating "I dare say it is very nearly right," proving the immense benefit his company will derive from the proposed undertaking, not merely in coal but in wood traffic in the return trucks and otherwise. The largest Hull and Hartlepool timber importer stated

in evidence—"Hull has far more to fear, in the way of displacement of her wood traffic, from the Wash than from Hartlepool." A meeting at Boston of bankers, merchants, manufacturers, shipowners, representatives of coalowners, and Great Northern shareholders, convened by the Town Clerk, over which the Mayor presided, has thrown its local sagis over this undertaking, replete with every element of success, offering a perfectly safe and highly remunerative investment entirely devoid of a speculative character, forming the absolute rescue of the Yorkshire, Notts, and Derbyshire output, the grand future of the Great Northern Railway Company, and the resuscitation of Boston. When the time shall come for the history of the last half of the nineteenth century to be written, it will be no true record if it omits from among the chief factors more potent than almost all beside the amelioration effected by the railroad and steamship.

20, Little Tower-street, July 12.

W. J. THOMPSON.

NEW ROUTE TO NORTH-WEST AMERICA BY HUDSON'S BAY.

SIR.—As one who knows something of North-Western Canada and North-Western United States, may I through the medium of your valuable journal suggest what is now felt as a great want, another quick "ocean route" between this country and America. For many hundreds of miles west of Lake Superior our countrymen and other equally hardy and intelligent settlers are located, growing first-class wheat, barley, oats, corn (maize), and large herds of fat cattle, but the only outlet for the home markets from this now largely peopled territory is the well-known Canadian ports or New York. Why should there not be a regular fleet running, say this autumn or next spring, between this country and the mouth of the Nelson River at Hudson's Bay? This point in Hudson's Bay is really 80 miles nearer Liverpool than New York, and saves a great deal of land transit and cost of freights from the head of Lake Superior to New York or Montreal. I am told that, except for two and a half months in the dead of winter, the ice would not, either in Hudson's Bay or the rivers above, form any very serious obstacle to navigation. What I humbly propose is that there should be a first-class fleet of steamers, and that this fleet should combine with it a superior class of vessels specially constructed for the safe conveyance of cattle and grain; that in connection with this fleet there should also be organised a fleet of steamers to run up the Nelson River, via Winnipeg Lake, and Red River for 100 miles west of Forge, in Minnesota, U.S., up the Red Lake River, and also on the Assiniboine River, which latter river flows west out of Red River from near to the head of Lake Winnipeg for some hundreds of miles through North-Western Canada. These rivers traverse some of the richest grain-producing valleys in the world, and are bounded by prairie on which fat cattle largely abound. The quality of this grain is very high, and many square miles of this country yield 40 bushels to an acre, and parts as high as from 50 to 70 bushels of wheat per acre. If this season's crop turns out well there will be a very large additional quantity of grain for removal for the home markets. Were these steamers properly arranged and advertised a large number of settlers would send their produce by this route. A run in end of September might be tried.

From Canada much of the grain it would never pay to take to distant markets, for besides long waggon transit, they would have to pay railway dues to two railway companies, and steamer, &c., to Montreal or New York from Dubuth, at head of Lake Superior. From the Dakota and Minnesota States, U.S., there would be a long railway transit to Dubuth, and then along the lakes, &c., to New York or Montreal. Even wheat from Dakota and Minnesota States could be carried cheaper by 6d. a bushel, or 4s. a quarter, to Liverpool, and from the nearer parts of North-West Canada there would be a saving of 9d. a bushel, or 6s. a quarter. For crop of 1881 the railway now under construction from Thunder Bay, Lake Superior, westward through North-West Canada will reduce the expense of moving grain to eastern markets. Still, even were this railway opened, it could not for a large territory compete with water carriage on the Assiniboine River and rivers adjacent to Nelson River to Hudson's Bay. So, too, with the United States. The States of Wisconsin, Minnesota, Dakota, &c., would largely use the Red River and its tributaries and railways that run through these States in connection with stations on this river for Hudson's Bay. An immense trade in grain and cattle would follow were a good class of steamers run between this country and Hudson's Bay; and in time, also, intending emigrants would find this the most comfortable and most economical way of reaching North-West America. GEORGE C. BRUCE, C.E. Edinburgh, May 6.

CANADIAN MINING NOTES.

SIR.—What I mentioned in my last letter with regard to the probable discovery of good mines in Central Canada, on the line of the Canada Central Railway, has turned out true. In the township of Ross, about five miles from Cobden, on Lot Mine, in the tenth concession of the township of Ross, county of Renfrew, has been discovered one of the best plumbago mines, probably, in the world. Graphite, or plumbago, has for a long time been an article of commerce, and the higher qualities of such value that the Cumberland graphite in England commanded at one time a price large enough to secure fortunes. In looking into the statistics with regard to graphite one is surprised no extensive exploration was undertaken rather than allow one man to command a price in the market so utterly inadequate to the amount produced. The history says he only worked it for six weeks in the year, and feared to create more supply because of lessening the demand. Such a man must have had a great deal of faith in the continued condition of his graphite to make the best lead pencils, and a great deal of faith in the conservatism of England and Europe to buy his graphite, no matter what the price. With Americans it is different; we would only buy the graphite as long as we could find no better, but we would be continually on the look-out for as good, or better. I have seen the specimens taken from the mine, and they seem to be as good as they can possibly be—superior in many respects to the Buckingham graphite. However, until the vein is more thoroughly explored it would not be safe to predict a success, but all appearances seem to show great quantities *in situ*. This mine is situated in the township of Ross, about five miles north of Cobden, on the Canada Central Railway. As mentioned before, this road is intended to be finished as far as Lake Nipissing, and thence there is a line of railroad being built from Grenenbust to the Lake. That line is called, I believe, the Ontario Junction; it will connect the North-Western, running to Hamilton, with the Northern, running to Toronto. All the timber and mineral resources of the country between Pembroke and Lake Nipissing will be opened, and when the line is finished, as it is proposed, between Lake Nipissing and Sault St. Marie, thence to St. Paul, Minnesota, the whole of the cereal traffic of those rich States will be apt to come down on the railroad to Montreal and Quebec, and be shipped to Europe. People in England have no idea of the immense farms on these prairie lands—farms of 10,000 acres, 5000 acres, 2500 acres. These are worked like a large establishment. They have "sulky ploughs," that is a kind of plough in which the honest ploughboy does not follow the plough at all, but the plough follows him; he sits in his seat and drives the horses, and drives them straight, and the great plough is dragged behind and does its work. By-and-bye they will have an awning for the ploughboy and furnish him with cocktails, a gin-sling, or a brandy-smash. In hot weather the poor fellow will require a sherry-cobbler, no doubt! After the ploughing and seeding is over the land brings forth the grain, without manure; then the harvesting commences, and the reaping and mowing machines are in full activity. Immense crops are raised, sent to Minneapolis, converted into flour and distributed throughout the United States and Europe.

THE ARMY OF PEACE.—In a former number of the *Mining Journal* I placed before your readers the idea of this Army, but now with a change of Government in England, and a Government whose motto is Peace, I can see no reason why more active steps should not be taken. The United Empire should be ashamed of itself when it allows such starvation as took place in Ireland last winter, and the Government should be more ashamed of themselves than the people. With such a farm as Queen Victoria possesses in the North-West, extending from the Red River of the North to the Rocky Mountains, it is time that these periodical famines in Ireland should be done away with. If England can expend millions and millions to carry on War,

why should she not spend some of her money to furnish the Army of Peace? The time seems opportune, particularly as we have now a resident Canadian Minister in London with whom the Government might consult.

I shall briefly sketch the outline of the scheme. I propose for the organisation of the Army of Peace each regiment to consist of 1000 men, divided into companies of 100 each. These men will be organised as a common army, except that instead of weapons of war they will have weapons of peace—agricultural instruments, machines, &c. They will receive the same pay; they will be entitled at the end of five years to 160 acres of land. The profits of each regiment will go to the support of each regiment, and at the end of five years any person can leave the regiment and take up his land, but the amount due from him to the regiment will be a charge on the land. There is no reason why 100,000 men should not be brought out under this system, and the profits of the tilling of the land would pay the Government an interest of 3 per cent. All along the foothills of the Rocky Mountains the regiments might be stationed, and in a few years there would be a large population. Messrs. Thomas Brassey, M.P., and Herbert Gladstone, M.P., might take steps to bring about such an organisation, and they would find more blessings would flow than by the march of thousands of armed men devastating the country.

Brockville, Ontario, Canada, June 30.

BOURNONITE.

NEW QUEBRADA COMPANY.

SIR,—On reading the report of this company I am surprised at the apparent one-sided contract with the Bolivar Railway Company proposed by our board, which I hope requires to be confirmed by the shareholders. Last year I believe the railway company received 30,000*l.*, and our Chairman hoped even at that figure to get more liberal terms for the coming year. But now it is proposed to guarantee the railway company 50,000*l.*, and if the mines produce 5000*l.* more we may take it, but if more we are to divide equally with the railway company to any unlimited amount the property may produce. Now, were this arrangement mutual, and this company to get half the railway profits over a certain amount, I could understand the justice of it, but as at present proposed it is very like confiscating our long cherished hopes at a sweep. I consider our liberality might well be limited to 50,000*l.*, and a legitimate sum for any extra quantity to be carried, the more the better for each company. I hope at the coming meeting this will be considered, as we should be cautious in making long and unwise contracts, such as strangled the East London Railway at its birth. Formerly a union of the two companies was intended, but if this contract be adopted there will be no necessity for it, as the railway will get, if not all, at least the lion's share, and the directors who belong to both boards will have no anxiety as to their interests.—July 11.

H. K.

NEW FLAGSTAFF CONSOLIDATED MINING COMPANY.

SIR,—It is really most regrettable to see so much delay and bickering in connection with the restarting of the mines which have been acquired by this company, and the more so because all the obstacles appear to be raised by not more than half a dozen gentlemen connected with the old concern; and even these, I venture to say, would secure a larger return by heartily supporting the New Flagstaff than by wasting their time over any resuscitation scheme whatever. I will try to show them that this is so. I was very glad to see that the New Flagstaff vendors are prepared to take 40,000*l.* instead of 51,500*l.* as purchase money, and that even of this reduced amount they really only want 4000*l.* for Mr. Pearson in cash, and will be but too glad of the balance in shares, because it will not be difficult with such a group of mines as the New Flagstaff Company will possess to pay handsome dividends on 80,000*l.* with a working capital of 40,000*l.*; and I have understood that if money be forthcoming to the extent of 50,000*l.* the American vendors would not object to accept 20,000*l.* in cash, and transfer the whole property. This, however, is a little beside the question; what I intend to do is to show that holders of shares and debentures in the old Flagstaff will lose less by forgetting their old Flagstaff interests and losses altogether, and relying at once on the New Flagstaff. This is, of course, assuming that they have the money, and the inclination to spend further money on the property they formerly held.

In the first place it is an essential feature in what has not inaptly been called the resurrection scheme—because that name indicates the probable date of the commencement of dividends—that no shareholder or debenture-holder is offered any interest unless he pays for it, and, as I shall show, unless he pays more than he is asked for to secure a corresponding interest in the New Flagstaff by straightforward and honest subscription. The New Flagstaff starts on the assumption that 28,500*l.* working capital is sufficient, the resurrection scheme estimates it at 27,500*l.*, so we will call it 28,000*l.*, to facilitate comparison. If we add to this the 40,000*l.* now asked for purchase money we have 68,000*l.* as the required nominal capital for the New Flagstaff. The New Flagstaff vendors will accept 4000*l.* in cash and the rest in shares, therefore if the old Flagstaff shareholders and debenture holders subscribe 32,000*l.* in cash they can obtain their lost property with valuable additions, and possess themselves of shares which may hereafter be valuable, because, as the *Mining Journal* has shown, the 28,000*l.* will only be required to earn profits for 68,000*l.* nominal capital, whereas supposing the working capital to earn 60 per cent. per annum, and the expenses of management and contingencies to be 3000*l.* per annum, dividends at the rate of 20 per cent. per annum could be paid on the entire nominal capital, and there would still be a couple of hundred pounds to carry forward.

Instead of this remunerative dividend of 20 per cent. the resurrection scheme, supposing the profits of the mine and the expenses to be the same as above stated, will give but a fraction over 9 per cent. on the nominal capital, so that if the market value of New Flagstaff shares was 1*l.* each the resurrection shares would be but 9*s.* In the face of this fact it would be absurd to suppose that the public would touch the 30,000 resurrection shares reserved for them at more than 9*s.* per share, if they refuse New Flagstaffs at 1*l.* each. But even the schoolmaster abroad must see that the said scheme is arithmetically impractical, although he may think it sufficiently insoluble for it to hold water. He must see that entire reliance would have to be placed on the old Flagstaff shareholders and debenture-holders, who, as experience has proved, will require something more than the power of all the American lemon squeezers in London to get the 37,500*l.* out of them, because most of them look upon anything connected with the old Flagstaff as overdoes of Angostura bitters, offered alone and undiluted; small doses may be good for health, but their experience is that they are ruinous to the pocket. Now, out of this sum of 37,500*l.* Mr. Pearson asks (after the reduction) for 38,000*l.* in cash, which only leaves 1500*l.* working capital, this being obtained by the issue of 120,000 shares to the share and debenture holders, and 4000 shares to the vendors, so that the 1500*l.* would have to earn dividends for a nominal capital of 124,000*l.*; hence, taking the profits at 60 per cent. on working capital as before, and the expenses of management at the same as before, the profit would be the negative (as I am talking to schoolmasters and professors I like to use language with which they are familiar) quantity (90*l.* minus 3000*l.*), which translated into commercial language means a loss of 2910*l.* per annum, to meet which it would be necessary to place annually nearly one-ninth of the 26,000 shares reserved for the public.

I think this will suffice to show that while 32,000*l.* subscribed as I have said honestly and straightforwardly to the New Flagstaff would (assuming 60 per cent. on working capital to be earned, &c.) yield the subscribers 20 per cent. per annum in dividends, the payment of 37,200*l.* to the resurrection scheme will entail an absolute loss of 2910*l.* per annum; and I need not point out, admitting that every old Flagstaff share and debenture holder, without a single exception, falls in with the resurrection scheme, that scheme would have to commence in a state of insolvency, from which it is highly improbable it could ever be extricated, and another 37,500*l.* would be added to the 300,000*l.* already lost. If an old promoter was right when he said "The public are not such fools as they pretend to be," it may be predicted that the old Flagstaff share and debenture

holders will know whether to wait for the resurrection for their profits, or at once support—
NEW FLAGSTAFF.

FIRST-CLASS INVESTMENT—ENGLISH-AUSTRALIAN GOLD MINE.

SIR,—This company was once prominently before the public, but in consequence of the long delay in striking the reef, through the shafts being placed too far off, and the consequent waste of the capital, it has almost been lost on the market. The prospects of the mine are now, however, quite altered, and before long shares will probably again be at a good premium. It has been a long struggle, and as is usual in these cases the company has been kept alive and prospecting work done through the faith and pluck of a very small number of the shareholders, a great proportion of them directors of the company, who were in the best position to have reason for their faith. A large body of auriferous stone has now been tapped, and profits commenced. The shaft is going down another hundred feet, at which level—the 520 feet—even richer ground may in all probability be met with. About 5000*l.* profit has already been realised. Even now the shares (1*l.* each) may be purchased, we believe, at about par, while a number of new companies, with six or more times larger capital to pay interest upon, and all the preliminary work to do at the mines, are selling at double the cost price. These latter may be well worth the price, but what investors should consider is that the shares of the English-Australian Company are just now much cheaper, the capital being so much less, and profitable working a fact. When once the auriferous reef is opened upon there is no kind of mining so quick in returning profits as that of gold. The object of investors is to buy cheap, so as to have a good margin for a rise or a good dividend. The total capital of the English-Australian Company is only 22,000*l.* A report of the annual meeting was published in last week's *Mining Journal*.

AN ORIGINAL SHAREHOLDER.

CAKEMORE CAUSEWAY GREEN UNITED BRICKWORKS COMPANY.

SIR,—In last week's *Journal* you called attention to the remarkable results recently obtained from some tests made as to the resisting strength of blue bricks manufactured at this company's works. To engineers, architects, contractors, and others thoroughly understanding and appreciating the qualities of this valuable material these results are perfectly intelligible, and speak volumes; but to the unprofessional reader I am afraid they represent a mass of figures that hardly come home to their understanding, and, at any rate, give them no idea of the important progress made in this manufacture, unless they be compared with something that previously existed. Will you, therefore, kindly allow me to add that these results are considerably better than any we have heard of before. Those published in the circulars of the two best known houses in the blue-brick trade, and who have been in it for many years, give the results of similar tests on the same number of their bricks as—

Lbs.	Lbs.	Lbs.
148,900 and 148,166 respectively, as against 220,417 in the case of this company.		
280,717 and 245,500 "	"	336,700 "
397,837 and 365,038 "	"	413,045 "

And the difference as to the average stress in the lbs. per square inch, and the average stress in tons per square foot (which it is hardly necessary to recapitulate) bears about the same proportion. These are not mere "hole and corner" experiments, but they are the results of tests by David Kirkaldy, Esq., of Southwark, who was the engineer appointed by the Commissioners of the London International Exhibition for the testing of Staffordshire blue and other bricks, and is well known as the great authority in all such matters. In setting forth the figures, I do not for a moment intend to depreciate the bricks made by other manufacturers, or to make any invidious comparison. I merely want to draw the attention of those who already appreciate the merits of the material to the important improvement in their quality, and to urge their more general use upon those who are yet comparatively unacquainted with their peculiar advantages. It is pardonable, however, on the part of a secretary of a company to believe and uphold that the bricks made by his company are better than others, and I do most unhesitatingly assert my belief that such is the case with ours. We have already made within a short period upwards of 10,000,000 bricks, and wherever these have been sent (and they have gone to all parts of the Kingdom and the Continent) their quality has been universally approved; and, as we have a practically inexhaustible supply of the material of splendid quality, and are fortunate in having coal on the spot from our own colliery, we shall be enabled to supply these imperishable bricks in any quantities that may be required.

I shall look forward with some curiosity to see whether the attention you have drawn to this material will be appreciated by mining men. These bricks are undoubtedly peculiarly applicable for such work. Foundations laid with them will be totally impervious to water or damp. No atmospheric or chemical action will have any effect upon them, and they will virtually last for ever, while the advantage of their being supplied from the works of any size or shape that may be required is incalculable.

A. W. SNELLING, Sec.

London, July 14.

GREAT DYLIFFE MINES.

SIR,—I have read the several letters which have appeared in the *Journal* of late respecting the above-named mines, and after perusing them, and especially the one signed "Lead Miner," in your issue of July 3, it seems incomprehensible to me that such a property should stand in the position which it at present occupies in the mining market. The extent of the sett, the number and productiveness of the lodes, are beyond question; while many mines, so called, which have never made any returns of ore, are quoted at prices more than double and treble the price of this. I do not know whether the silly story about the mines being worked out has anything to do with it or not, but if so I would advise those who are doubtful on the point to do as I did, go down and examine the property for themselves, and I am sure they will be convinced of its great value, and that it is one of the best investments of the day.

SHAREHOLDER.

Kennington, July 14.

WHEAL HONY AND TRELAWNY UNITED MINES.

SIR,—I notice a paragraph by Messrs. Watson Brothers in last week's *Journal* with regard to the above company's mines, and from the well-known position which these gentlemen occupy I am confident that they will readily withdrawn any expressions which they have used tending to the prejudice of such a valuable property, and the locality in which it is situated. I regularly read their remarks in the *Journal* with great interest, and am bound to admit the generally sound arguments contained in them, but Messrs. Watson will, undoubtedly, confess that they are not infallible any more than others of human kind, and probable in this case of the above mines they will find on review that statements have been perhaps hastily and unguardedly made which this well-known valuable and rich property does not merit.

It is very difficult to frame a prospectus on such an extensive undertaking without falling into some errors in minor details, but I contend, and in this contention I shall be supported by some of the best mining agents in the kingdom, that the calculations contained in it are substantially correct, and the estimate of the future profits extremely modest. Smith's shaft in Trelawny Mine is 210 fathoms deep, and as soon as the water is drained, the doing of which will perhaps occupy six months, it must be patent to every practical man that this company will possess unusual facilities for rapidly extracting the ores from the Hony part of the property north of that shaft, and the best argument as to the great value of the lode and vast amount of silver-lead there is to be found in the fact that the eminent mining authorities who worked the rich mines of the Liskeard district and elsewhere were so exceedingly anxious to acquire the ground in question.

Messrs. Watson say they were under the impression that Hony's land was purchased for 1200*l.* for Trelawny Company. Now a very small detached field belonging to the late Dr. Hony which stands in the midst of Mr. Trelawny's land was granted to the late Trelawny

Company by lease for mining purposes, and a premium of 1200*l.* for it in addition to the usual royalty on ores sold, but I can assure Messrs. Watson that not ten times 1200*l.*, or, indeed, any sum whatever, could have secured a grant of the Trelawny estate in Dr. Hony's lifetime, the working of which estate forms the primary object of the Wheal Hony and Trelawny United Mining Company.

July 15.

WILLIAM DREW.

LEAD TRADE.

SIR,—This market has not looked so strong for a long time, and the great heat in Spain has prevented the smelters from working, so that there is no chance of any coming from Spain for the next few weeks. German smelters are so well sold forward that they demand 16*l.* 5*s.* for common pig-lead, and their price not long ago was 14*l.* over six months of this year. English lead nearly all the large mines and smelters, such as Mr. W. B. Beaumont, London Lead Company, and others, have refused to sell. Freight on lead from Spain must also go much higher, as there are no outward cargoes to be had for coke, and Esparto is very scarce, and only small lots ready for shipment.

SHIPMENTS of Spanish and Greek silver-lead to the Tyne from January to July 15, 1879, are 17,056 tons, same time this year 14,000 tons, showing a considerable decrease of 1000 tons.

STOCKS.—There are two small lots of silver-lead warehoused, which are held for considerably higher prices, and a small lot of about 200 tons on the way.

EXPORTS during the last six or seven weeks are considerable, and a fair demand for all kinds of lead goods coming forward from the Continent.

SPECULATION.—Some London and foreign merchants have sold very large lots at low prices on the Russian market, and in some cases named the best Tyne brands, which they have not bought. So taking the market as it now stands, there is every prospect of another rapid advance, the same as there was just about this time last year.—July 15.

STOCKS.

GOVERNMENT INSPECTOR OF MINES—WESTERN DISTRICT.

SIR,—I have discovered the reason why, in the appointment of the Inspector for this district, Mr. J. H. Collins, F.G.S., Truro, was overlooked. Whenever the Government wants an officer to fill a situation of that kind the Home Secretary applies to the director of the Mining School in Jermyn-street for a qualified person. Of course the director would recommend one from that establishment in preference to anyone else, however well qualified an outsider may be for the post. I do not question the abilities of the gentleman who is to succeed Dr. Foster, although I know nothing about him, but I do know that Mr. Collins is eminently qualified for any situation where an intimate knowledge of mineralogy, geology, chemistry, and mechanical science is an essential preparative. I hope that somewhere else Mr. Collins will receive an appointment of equal, if not superior, value.—Truro, July 9.

R. SYMONS.

AN AURICULAR NUISANCE.

SIR,—Nuisances with which we come in contact are of numerous kinds—ocular, olfactory, auricular, &c. Of the last named there is an instance at Wheal Basset, in Illogan, but not caused by that company. The West Basset Company obtained the consent of Mr. Basset, the landowner, to erect a steam battery of 80 heads in Wheal Basset, on that part of it formerly called North Basset, in the rising ground between that mine and the monument on Carn Brea Hill. There is no covering to the same—at least, there is no boarding wall—to intercept the noise occasioned by the falling heads. The consequence is the noise spreads around in all directions, to the annoyance of the residents in the locality, and particularly to those of the village of Carnkye, which is very near. During divine service, on Sundays, stamping is suspended. We all know that the process of reduction of the tinstone must be effected somewhere, and that where in the populous parish of Illogan we cannot go very far from dwelling-houses; but the nuisance can be very considerably abated by placing a boarding in front of the lifters. The population around have, I suppose, borne with the racket as an inevitable evil, which do not regard as being so, for if they will present the case to the manager, Captain Nicholas, I dare say that he will take measures to abate the nuisance without delay, because he is a very reasonable man, and disposed to do everything that is fair towards his neighbours.—Truro, July 12.

R. SYMONS.

MINING IN CORNWALL—PERRAN PORTH.

SIR,—Now the price of tin is again becoming remunerative to the Cornish mine adventurers, and will most assuredly become still more so as the general trade of the country revives from the very protracted state of depression in which it has lain for several years. It seems a most opportune time just now to commence the development of deserving properties. A few days since I had occasion to visit Perran Porth, and saw there, close by the sea, a most promising lode just being opened out, the lode being 4 ft. wide, and containing stones of tinstuff from 20 to 50 lbs. weight, producing from 3 to 5 cwt. of tin to the ton of stuff. I was surprised to see this close to the surface, and so close too by numerous old workings on all branches, from which many tons of tin have from time to time been raised by tributers, who seem to have missed a good bunch of tin close at hand. There are many other lodes near this, and all within 10 or 300 fms. of the once celebrated St. George Copper Mine, so that this property looks like a most deserving piece of extensive unwrought ground, and I hope the party who has just obtained the grant of it will soon get over the preliminaries, and commence the development of it with vigour, resting assured of a good return for the outlay.

July 13.

MINING IN SHROPSHIRE—OSWESTRY.

SIR,—I have been looking out for some weeks past for your *Salt and North Wales Correspondent* to say something about the mining operations now being carried on not far from Oswestry. Some months since, in one of his tours through the country upon the Cambrian Railway, he made a few remarks about some trials that were being carried on at the Pant, or near the Llynelys Station on the Cambrian Railway. A friend of mine, with myself, paid a visit to that part of the country, there we saw from 80 to 100 tons of lead ore upon the Crickheath Mine, most of which had been raised during the past and present month; and on seeing this I was surprised that your Correspondent should have been silent upon so valuable a discovery. Great praise is due to the energetic manager of Crickheath Mine (Mr. Henderson) for his ability and judgment in carrying on the concern to such a successful issue. The lode on which they are working is a north and south one, and from what I could gather from one of the miners from 3 to 4 ft. wide, composed of splendid gossan, clay matter, and lumps of solid lead ore, from which two men can raise from 1 to 2 tons per day. This augurs well for the adjoining property, held by the New Llynelys Mining Company, as the present end in Crickheath is about 80 fms. south of the boundary of New Llynelys Mine; and having some time to spare we made a little sketch of the lodes traversing the sett, where some men were employed sinking an east and west lode of a very promising nature, composed of gossan, and composed limestone, and showing good samples of lead ore. The were down about 2 fms., from which they had broken about 10 cwt. of ore; this so near the surface speaks well for productiveness. The lode is from 2 to 3 ft. wide, and is only 5 fms. or so from a parallel lode, and the present shaft only 6 to 7 fms. from a north and south lode underlying west; this lode is undoubtedly the same one as the Crickheath Company have been so successful in getting their lead ore from. No trials have been made by the New Llynelys Company of this north and south lode, more than some few years ago the former company made a trench at surface on what was thought the junction of some other lode. The indications were then of the richest character. I understand the present company intend sinking this shaft on the east and west lode 10 fms. or so, for which I congratulate them, as they can at that depth put a cross-cut to each of the other lodes, when they might reasonably expect good results. The dis-

at Crickeath and the fine prospects in New Llynelys trials well for the district, and I wish both companies every success. OBSERVER.
July 14.

CARDIGANSHIRE MINES.

With regard to Blaen Caelan Mine and your correspondent, who signs himself "Shareholder," I should be most happy to indicate the place to him or any one else under a wrong impression when he says Esgair-time he appears under a wrong impression. The facts are simply this: "I drove" their workings into Blaen Caelan. The facts are simply this: I was told there was an old shaft with good lead at the bottom of it. We proceeded to clear it, but found we were not on our own land. This shaft is undoubtedly on a lode which goes into Blaen Caelan and is to the south of the Blaen Caelan brook, but whether the same as the present company is working on I cannot say, but I do know most positively that the main Esgair-hir lode may be passing farther south, how far I cannot possibly say. I quite agree with "Shareholder" that the merits of Blaen Caelan as a mining investment have been greatly overlooked. Leaving the Tynnewydd and Maelgwyn Mines we cross over the hill, following the run of the lode into the Lery Valley, and then come to Cefn Gwyn Mines, the lode being both sides of the Lery River, which the lode crosses; on the east side is the engine shaft, which is down about 20 fathoms. They drove a deep adit west towards Mynydd Gorddu, in which they had a splendid lode full of lead, blende, and copper ores. This level had to be pushed on, or the 20 fathom level from the engine shaft came to the west under the brook. This mine is well worthy of a better name than it has yet had. Over the hill we come to the Mynydd Gorddu Mine, where a splendid deposit of lead was discovered at the surface by some working miners of Pontgach about ten years ago, the blocks of ore being 3 feet wide, nearly solid. The present company drove a cross-cut to come under this and sunk down an engine shaft to a 12, 24, and 34 fathom level, and they are now sinking on a 46 fathom level. The lode is one of the most promising I have ever seen; not only being very rich for lead, in some places worth 3 and 4 tons to a fathom; but even this, rich as it is, is probably only the water of a great mass of ore which may not be met with in its entirety until 50 fathoms or more has been gained. The next mine to the west is the Court Grange Mine. I was told there had been a rich discovery of ore there lately, and I will go and see for myself before reporting on it. Business calls me next week to the Rheiddol Valley, where I am authorised to inspect Cwm Pryf Mine, and I shall send myself of the opportunity to stay for a few days with a friend and visit the Dolfawr, Tynfryn, Temple, Old Ystymtuen, and other mines of that district, the result of which I shall be able to place before your readers next week. CHARLES WILLIAMS, M.E.
Daf, Taliesin R.S.O., July 15.

CREBOR MINE.

The best commentary on the various letters which have appeared in the Journal is the price of the shares. All the efforts of the "bears" fail to lower the price, and those who have had the courage to stick to their shares through evil report are now sustained by the excellent position of the mine and the grand future which is before it. In calculating the price of a mine share the most important factor is the future prospect of the adventure. Those persons who buy Crebor shares now are looking to the results which will most certainly be achieved when the ore is found in the bottom of the mine can be advantageously worked. The report which appears this week is good enough for ordinary mortals, and sufficiently justifies the buying which has recently taken place. The new lode will be soon worked upon, and, taken as a whole, Crebor will fully sustain the good opinions formed of it, and we look to an important rise in the shares. JAMES SCOTT AND CO.
London, July 15.

GREAT CAMDWR MINES.

With reference to Mr. Charles Williams' report on these mines, I can bear out his statement with regard to the copper in the bottom, as I was working there at the time. The course of ore was east of the engine-shaft, and was over 1 ft. wide, solid, but almost immediately after cutting into it the water came very fast, and overpowered the pumps, and for some reason, probably want of capital, the property was abandoned. This was about 30 years ago, and nothing has been done since, probably because of its being so close to the boundary, but with the extensive sett that the present lessees have no time ought to be lost in forking the mine, as it can promise them that the bottom level will realise their expectations. M.C. Glyneth, July 14. THOMAS JENKINS.

THE CARADON DISTRICT.

The West Caradon management appear to be developing a big and valuable mine at a comparatively shallow depth. May I be permitted to suggest that the Caradon management should follow, if not lead, in so good an example, by sending their local agent to explore the surface of their property for any signs of (even or otherwise) of mineral veins cropping up elsewhere than where they are now working at so much apparent disadvantage. Their good luck may come again, but it is to be hoped that they have more than one string to their bow. July 15. COPPER ORE.

PHENIX UNITED MINES.

On July 6 I wrote to Mr. Polkinghorne, the purser, asking when a meeting of the shareholders in the mine would be held, as one appeared to be overdue. Mr. Polkinghorne has not had the politeness to reply at all, and I am in this way. I thought shares for several clients at high prices, and the shares going down in the face of a rising metal market? What can I reply? Besides, I am a shareholder myself, and naturally anxious. Can any of your readers inform me? W. THOMPSON.
[For remainder of Original Correspondence see this day's Journal.]

FOREIGN MINING AND METALLURGY.

The tone of the Belgian iron markets has been firm. Orders have been to come to hand, and confidence appears to be reviving. Only a few establishments appear now to be in any want of work. Business may not be effected at present at very high rates, but still the upward tendency of prices is decidedly checked. So long as consumption remains as active as it is at present it appears probable that prices will be maintained upon the Belgian markets, but the price is largely dependent upon the course of business in the United States. Iron is quoted in Belgium at about 57.4s. per ton, while prices have made 87. per ton. It is probable that in order to secure important orders some reductions would be made from these rates. The production of merchants' iron in the province of Namur in 1879 was 26,155 tons. The Acoz Forges Company proposes, it is said, to install steelworks on the Thomas Gilchrist system at Chateleaneau. Nothing definite is yet known on the subject. Orders for various descriptions of iron have not sensibly slackened in the Haute-Marne group (France). Rolled iron has sold at 87. 8s. 12s. per ton, mixed iron at 97. 4s. to 97. 16s. per ton, charcoal-iron at 97. 16s. to 107. per ton, and special iron at 87. to 87. 8s. per ton. The foundries have a good deal of work on hand for building and railway purposes. Rough axes are quoted at 107. to 107. 16s. per ton; turned axes made about 47. per ton additional. There has been much doing in pig at St. Dizier. The manganese pig produced in Germany is offered at 47. 12s. per ton in the Haute-Marne works. In the Meurthe-et-Moselle pig is quoted at almost nominal prices. No. 3 pig for second fusion has made 37. 2s. 6d. to 37. 4s. per ton. First-class rolled iron has been quoted at 87. 8s. to 87. 12s. per ton. The imports of iron minerals into France in the first five months of this year amounted to 406,008 tons; of these minerals 124,449 came from Algeria. The Creusot Works have contracted to supply the Western of France Railway Company with 200,000 tons of rails; the delivery of these rails is to be spread over 13 years. It is considered that the decline in iron has been arrested upon the German markets; bars are now quoted at 87. per ton at the works. Prices of coal have been well maintained in Belgium, and show some advance as compared with July, 1879. Orders have begun to come in rather more freely, and working operations have become somewhat more general in the Belgian collieries; work is still, however, not carried on with the full number of men. Some important contracts for coal which are about to be let in Belgium are expected to fix prices more definitely for the autumn. M. Berchem, engineer in chief of mines for the province of Namur, has just reported upon a scheme of mining and metallurgical industry in that province in 1879. It appears that 19 out of the 39 coal mines of the province remained inactive last year; the total production of coal for the year was 417,456 tons. The average selling price declined in 1879 to 11d. per ton; in 1878 it was 6s. 3d. per ton. The average cost of production was 6s. 9d. per ton in 1879, as compared with 7s. 2d. per

ton in 1878, so that coal mining was generally carried on at a loss in the province last year. The general aspect of the French coal trade remains much the same, the deliveries have been tolerably active upon all the great lines, and the extraction has not diminished. In Germany the coal trade has remained firm; prices have, indeed, been even tending upwards.

REPORT FROM CORNWALL.

July 15.—We certainly cannot complain of the absence of advisers. The other day Mr. Strauss paid a visit to Dolcoath and gave his view of the future of the tin market, and this week Mr. Hitchings has visited South France and expounded his views there. We need hardly say with which line of opinion we are more likely to agree. Our idea has always been to have faith in the future, and to hold that the untoward course of recent events has been caused mainly by unnatural interference with the market, and not by the natural course of it. This is the view taken by Mr. Hitchings, who holds that we shall, ere long, see such prices as have never been seen since the days of foreign competition. The fact is that whenever a new discovery of tin has been made abroad the ruin of the mines at home have always been predicted. Sir Stamford Raffles in his day predicted that of the Straits tin in the hearing of one of the most veteran of our Cornish smelters, and we all know what was to come of the wonderful stream works of Australia and Tasmania, and what they are now—more operative in the hands of panic mongers than really qualified to disturb the market by their products. If people would only look at the demand as well as the supply, at the consumption as well as the production, they would take a more healthy and correct view of the position of affairs. Mr. Hitchings estimates that America is using five times as much tin as it did, and those who think that this is too bright an outlook, difficult as it would be to disprove his figures, would do well to remember that such an estimate as this would bear a very large discount without materially affecting future prospects and conclusions. Every indication to be drawn from the fullest review of the condition of tin mining and tin consumption points in fact to a large advance and a period of marked prosperity, and though Cornwall cannot now govern the market its quota of the production is so large that properly handled it must have a material influence.

We cannot believe that Mr. Basset will exact, or that Mr. Bolden would advise, the exaction of the 500l. penalty laid down in the South France sett as contingent upon the breaking of the barrier between that mine and West Basset. The violation of the terms of the lease is in the purest sense technical, no harm whatever has been done by South France either to its neighbour or its lord (indeed there are very good reasons for believing that the communication opened may prove a mutual advantage), and what is perhaps a good deal more to the purpose, on Captain James's showing, both mines have by permission been working within the boundary laid down under their respective leases, and Mr. Basset has for seven years received the resultant dues. We repeat, we cannot believe that that demand can be intended to be enforced, and that being so it is much to be regretted it should have been couched in such a form as possibly to lead to misapprehension.

We are always told that it is impossible to get special legislation for our local mining interests, and the current of past legislation certainly favours that belief. It is not yet too late, however, in the general interest of mining to consider how it is affected by the Employers' Liability Bill, which in some form or other we may now assume is certain to pass. Mining, as we all know, is an occupation of very exceptional perils and risks, and metal mining in this part of the world is, as too many of us know, subjected to so many burdens and drawbacks that it can very ill bear any more. It is to be much regretted, therefore, that although there has been a certain amount of talk concerning this measure and its probable bearing upon the adventurers in any mines no definite action has been taken. Even now with the Mining Institute to aid us—and it certainly has done something in that direction—few things are more difficult than to get up any concerted action among mining folks in the county, however important the topic may be, and this instance is no exception to the rule. It may not yet be quite too late to do something, or at least to try to put the case of the metalliferous mines definitely forward through some of our local members of Parliament if there is anything in the Act that at all presses with special weight or unfairness upon mining interests. As things are it is fortunate that the "special rules" will speedily come into operation, for they, at any rate, will greatly reduce the liability to accidents, as so many of our casualties are commonly, but erroneously, called.

Our remarks about non-liability of owners and adventurers under the Act apply also to a very singular accident at East Crebor. A violent thunderstorm broke over Dartmoor, on Tuesday, and was followed by a perfect deluge of rain. The torrent which poured down the valley of the Tavy rose so high that the waters rushed into the adit level of East Crebor and flooded the workings. Some of the men with difficulty made their way to surface through the deluge of waters, but three were drowned, including one who went back to warn his comrades. This is a very remarkable casualty, and we do not recollect one of a similar character since the terribly fatal catastrophe at East Wheal Rose, which in like manner was flooded by a sudden downpour, ascribed to the breaking of a waterspout. The water at East Crebor has been forked, and the bodies recovered.

Of course, no employer could be held liable for such a casualty as that which happened last week at Dolcoath, where a man was killed by the explosion of pent-up air in the rock, which burst forth when the pressure was reduced below the restraining limit, by the bursting asunder of rock strained beyond the limits of cohesion, for the support had been removed in the course of working. Dr. Foster suggests that these accidents can only be prevented by the filling up of the cavities worked, as is done at the Van Mine, in Wales, where the deads are systematically packed upon a well devised plan underground, and at certain other places in England and on the Continent. The feasibility of this method of working in its economical results must, however, largely depend upon the character of the mine and the conditions under which it can be worked. Nor does it seem likely that if it were adopted universally, though no doubt it would largely minimise the liability to accidents from this cause, that it would obviate them altogether. If in this instance dynamite had been used for blasting no doubt the fault would have been put down to it; but the blasting material being powder natural causes only could be assigned. It is not at all unlikely that dynamite has more blame than it deserves.

The tin ticketing this week again shows some curious results. A parcel from Carn Brea went to five of the old companies at 57. 12s. 6d. per ton, which was 15s. in advance of the Penpoll figure. That from Wheal Pevor was bought by the same firm at 507. 12s. 6d. per ton, against the Penpoll 507. 12s. Only the Tincroft parcel went to Penpoll at 507. 10s., its competitors, who were, as in the other case, all agreed, offering 507. 2s. 6d. This variation and agreement is not easily explainable by on-lookers. However, the main fact is that these prices indicate an advance of rather over 3s. on the standard, and that this is just the advance which has been made this week ticketing apart. At length, therefore, we have recovered the ground which had been lost since the year commenced.

MINERS' ASSOCIATION OF CORNWALL AND DEVON.

The following is a list of successful candidates from chemistry classes at Camborne and Redruth in the late examinations by the Science and Art Department in London:—

CAMBORNE CLASS.—Practical Chemistry: J. H. Johns, W. H. James, R. Provis, and Mr. Rich, second-class honours; G. Davey, F. W. Hutchinson, J. Blamey, T. H. Menadue, E. Opie, H. T. Robinson, and W. E. Treweek, first-class advanced stage; H. B. Reynolds, second-class advanced; R. E. Hall and W. Sheard, first-class elementary stage; J. Eustice and R. R. Morshead, second-class elementary.—Inorganic Chemistry: T. Rich, T. W. Hutchinson, G. Davey, E. Opie, W. Bond, W. Seaman, and M. Seaman, second-class advanced stage; W. Blamey, R. E. Hall, J. Eustice, and W. Sheard, first-class elementary and Queen's prizes; R. E. Morshead, second-class elementary.

REDRUTH CLASS.—Practical Chemistry: R. H. Beringer, first-class elementary; W. D. Smith, J. E. Penrose, J. Hocking, T. S. Smith, and J. Heyden, second-class elementary stage.—Inorganic Chemistry: R. H. Beringer, W. D.

Smith, and W. E. Treweek, first class elementary and Queen's prizes; H. B. Reynolds, J. Heyden, J. Hocking, J. E. Penrose, and T. S. Smith, second-class elementary.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

July 15.—The Quarterly Meetings have resulted in the receipt of a satisfactory amount of fresh work at the blast furnaces and the mills and forges; and at the meetings of the trade—yesterday in Wolverhampton, and this afternoon in Birmingham—many makers were reluctant to book further, that is at the prices which have lately ruled; and consumers on their part were disinclined to give the advanced rates now demanded. Cinder pigs are 27. 2s. 6d. per ton, and other brands a little better—27. 5s. Derbyshire pigs are 47s. 6d. to 50s.; other pig quotations are unaltered upon those given last week. During the past quarter the blast furnaces that have been blown out in South Staffordshire are calculated at 21. Manufactured iron shows most activity in sheets and hoops, which are in improved request, and for which the Americans are beginning to enquire. For sheets 77. to 77. 5s. is the price, with 87. for doubles, and for hoops 67. 15s. to 77. easy. Boiler plates and best thin sheets are in brisker sale. The best feature in the latter branch just now is that consumers specify rapid delivery, and are more considerate than lately as to the prices which they expect makers to accept. For thin sheets of the "Severn" brand 127. is the quotation.

The coal trade continues in a languishing condition. The supply is considerably in excess of the demand, and prices are very low. Forge coal is abundant at 6s. per ton, and furnace sorts at 9s. and under. During the week agents hereabouts of coke makers in South Yorkshire and Wales have made large contracts extending to the end of this year, and in some instances longer. Staveley and South Wales coke is 16s. delivered, Yorkshire 15s., and Durham 19s. Iron ore contracts have also been freely entered into since my last, but at low prices.

A fire of a serious character was on Saturday discovered to be burning in one of the pits of the Cannock and Wimblebury Colliery, and over 200 men have been thrown out of employment. By spontaneous combustion a pillar of coal at the bottom of the shaft, from which the Old Park coal is drawn, caught fire, and it had burnt the stage upon which the steam-pipes going to the hauling engines pass before it was found out. The men were brought at once to surface, as were also the horses, with the exception of four, and these could not be reached. The two shafts have been covered in, and the fire is now extinguished. Considerable damage has been done by the fire, but no correct estimate can be given until the pits are reopened. At present the works are too hot to permit of the re-admission of the air.

CLARIDGE AND COMPANY (Limited).—At a meeting of the shareholders of this company, held at the Millfields Foundry, Bilston, it was resolved to wind-up the affairs of the company in voluntary liquidation, and Mr. T. S. Hatton (Hatton and Muras, accountants, Wolverhampton) and Mr. J. Wilson Marsh (North and Marsh, accountants, Wolverhampton and London) were appointed joint liquidators.

TRADE OF THE TYNE AND WEAR.

July 14.—There has been a good demand for first-class steam coal during the week, a contract having been made for 6000 tons of this coal, which will be taken away by Dutch East Indiamen. The demand for second-class steam coal continues moderate, and manufacturing coal continues plentiful and cheap. The gas coal trade is unchanged. The most of the best works are engaged on contracts, but others which are not fully contracted have lost some time lately. In South Durham increased activity is noticed in the coke trade, as the strike in the iron trade in Cumberland has closed, and one or two additional furnaces have also been blown-in in Cleveland, and enlarged consumption is expected during the next few weeks. Stocks have accumulated at some of the coke yards, and prices have been much weaker; as low as 10s. 6d. per ton at Middlesborough has been quoted. Some of the large makers have, however, contracts running which were made at much higher prices, both for the Cleveland and Barrow districts. Some iron firms in Cleveland are still paying 18s. per ton for coke, but these are exceptions; and there are others at prices below the average, at rates scarcely profitable to the coke-maker. The exports and imports at Tyne Dock were heavy of late, the coal shipments having been large, and will prove, it is expected, fully up to the average. The exports of pig-iron have also been considerable, and there have been good imports of iron ore, lead, &c. A steamer has also arrived with a large cargo of copper ore. The iron trade has been much firmer, and a stronger tone shown during the week. This was observed when stocks returned proved so favourable, and it was augmented at the Quarterly Meeting, on Tuesday, and further improved after the Midland Quarterly Meeting reports had been received. A steadiness and firmness was observable, with some advance in price, and another great advance took place on Thursday, on account of the reception of Scotch operators, and this had the effect of making prices 40s. to 41s. No. 3, and this has been maintained since. Some sellers ask more; of course, there has been some speculation, but large purchases were made for legitimate consumption. The shipments of iron are moderate. The manufactured iron trade has also improved a little—more enquiries, and better rates. Bars are 57. 10s.; ship-plates, 67. 5s. to 67. 7s. 6d. The North of England ironworkers expect an advance on their sliding scale next quarter. The Belgian Consul in the Tyne has received intimation that the Belgian Government are open for tenders for the supply of 23,000 tons of steel rails for the State railways, also a quantity of steel tyres for wagons, &c. They have also 10,000 tons of old rails for sale. The chemical trade has improved; the make has been reduced, owing to the strikes at a few works against a reduction of wages, and as no stocks of consequence are held the demand appears to be coming up to the supply. Prices are firm, with a tendency to rise. Considerable shipments have been made.

The Employers' Liability for Accidents Bill continues to attract much attention, both from employers and workmen. It appears to be generally acknowledged that a measure of this kind is required, but the framing of the measure, it is also quite clear, is a very difficult matter, so that justice may be done on the one hand to the employed, in giving them full protection from masters or agents who are reckless or negligent, and on the other hand a fair field for the employer, and some security against actions on frivolous pretences or doubtful cases. No doubt the result of the coroner's inquest and the views held by the Inspector in many cases will be some guide as to the probable claim for compensation in any particular case, but it will be necessary to be very careful in the framing of such a measure. The number of fatal accidents from falls of stones and coal in this district is, we believe, being gradually reduced, but it is hardly possible when the roof is bad in a coal mine to prevent them altogether. Very much, of course, depends upon the care exercised by the workmen themselves. All that the owners or agents of mines can do with respect to this class of accidents is to provide sufficient timber and enforce the rules as rigidly as possible. Accidents from overwinding do not often occur in this district, but safety hooks have been adopted in many cases, and these appliances will certainly reduce the number of accidents of this class. The apparatus is effective, and no doubt it will in time be generally adopted. The district has happily been free from serious explosions of gas for some time, and this has been brought about by improved ventilation, the use of the Guibal fan, and the general use of the safety-lamp in all fiery mines. The subject of insurance is also attracting much attention, and it must be noticed that the Miners' Permanent Relief Fund established in this district has already accomplished this object to a great extent for the miners. This fund, of which a notice appeared in the Journal last week, has now 70,000 members, and an annual income of 40,000l. Mr. Howie, the Chairman of the society, has been in London lately, and at a meeting held for the purpose of discussing the proposed Bill he gave his views on the subject of insurance, and from his long experience and connection with the Miners' Permanent Relief Fund here he is well qualified to give valuable information.

The iron shipbuilding trade continues brisk. Many launches of steamers have taken place lately, and most of the yards are well supplied with orders at present. Most of the builders of marine engines

are also well supplied with orders at Jarrow. This branch of the business is extremely good. Some very large marine engines are in hand there. At Hawthorn's, in Newcastle, and at most of the marine engine works in Newcastle and Gateshead, there is a good deal of marine work (engine and boilers) in hand, but with respect to locomotives and other land engines only Stephenson's works are well supplied with orders. At Hawks and Co. and Abbott's works the rolling mills have again got fairly to work, but the large foundries at these works are only moderately employed. At Middlesbrough on Tuesday the market was firm, and a large quantity of iron has changed hands during the week. The market was excited, and prices irregular, but 42s. for No. 3 was the general rate; No. 4 forge, 41s. Messrs. Connall's warrant stores have a stock of 91,660 tons—an increase of 650 tons. The shipments of pig-iron have been favourable. A good continental and Scotch trade is expected during the present month. Shipments of manufactured iron have been good, and more enquiries are coming to hand; prices are firmer. The steel trade is also firmer, and the make of steel will be increased both for ship-building, rails, &c. Blast furnace and iron ore operatives' wages remain at the same figure for the current quarter. Shipbuilding is brisk on all the north-eastern rivers—6l. 10s. is asked for ship-plates; common bars, 5l. 12s. 6d. Coke firmer. The Supplementary Trade Returns show that the exports of iron and steel have vastly increased during the present year. In June, 1879, only 1264 tons of iron rails were exported, but in June last the quantity was 25,417 tons. Over 17,000 tons were sent to the United States, and to British India 6600 tons. Of steel rails the quantity in June, 1879, shipped was 33,689 tons, but in last month 66,582 tons were shipped. The prices of the rails have also increased. There are also good orders in hand at present. The North-Eastern traffic returns show a continued increase in all departments. In minerals the increase is 6418l. for the week ending Saturday last.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

July 14.—At the last examination for the colliery managers' certificates there were 22 candidates, 13 of whom passed successfully. Out of these 13 four are from this district, and it is with pleasure that their names are here recorded. They are Messrs. J. H. Darby, Brymbo, Wrexham; H. Headley, Coppia Colliery, Mold; S. Gregory, Hawarden Colliery, near Chester; and R. Davies, Adwy Clawdd, Wrexham. It is to be hoped that these gentlemen will strenuously use the position and knowledge they have acquired to reduce the number of colliery accidents as far as lies in their power, and in managing the collieries committed with the utmost impartiality both as regards masters and men.

The adjourned inquest held to enquire into the death of William Phillips, a collier, working at the Wynnstay Colliery, Ruabon, who was killed on July 3 by a fall of coal and shale, was concluded on Friday last, July 9, the jury returning a verdict of accidental death. No blame was attached to any one. All necessary precautions had been taken, the place was well timbered, and it was generally agreed that the accident was not the result of carelessness on the part of any one.

The Brynkinalt Collieries, near Chirk, the reopening of which was announced some time since, are now, it seems, in a flourishing condition, and are working full time, which is more than can be said of other collieries in the district. The coal trade of the district still continues depressed, and the signs of its revival are but poor and few.

The late manager of the Teyniet Setts Quarry, near Penrhyn-dendreaeth, has been sentenced to 12 months imprisonment with hard labour for embezzling two sums of money of a total of less than 4l. Among other witnesses a quarryman employed at the quarry was called to show that the manager had paid him in excess of the amount put down in the cost-sheet in order to retain his services. This is a flagrant instance of "judging" the cost-sheet—a practice which is not limited to slate quarries, but which, it is to be feared, takes place with more or less frequency in lead mines also. The manner in which this is done need not be explained here, but it will be well for both quarry managers and mine captains to be warned by the example here given.

The arrangements for the forthcoming Eisteddfod at Carnarvon are making good progress, and it is pleasant to see the interest taken in it all over the district from the humblest quarryman up to its noble and aristocratic patrons.

Amongst the prizes offered is one of a value, I believe, of 30l. for the best essay on the "Metalliferous Deposits of Flintshire and Denbighshire." The prize has been offered before, but no essay has been deemed good enough. The prize essay ought to be a really valuable addition to the somewhat scanty information at present existing relative to the above mining district, and it is to be hoped that some able and competent men have been induced to unite and try for it. Surely some of the men boasting so many years practical experience at this or that mine in the district will try for it, and not let a prize like this, whose value is far greater than its mere monetary one, slip through their fingers.

The question of the pollution of the Upper Severn by the mines about Llanidloes has been gone into exhaustively by the Superintendent of the Upper Severn Fishery Board, who is of opinion that the matter is not quite so bad as was described in a recent letter in the Field. He has made an inspection of the mines of the district, and seems satisfied that all has been done on the part of the mines that can be done to prevent pollution of the river, and where this is not so his suggestions to the various captains have been met with an evident desire on the part of the latter to adopt them as far as lies in their power to do so.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

July 15.—There has been no material change in the state of trade generally in Derbyshire since last notice, there being still many workmen only partially employed, and others entirely idle. In the lead-mining districts business has gone on much as usual, there being no surprises to notice or new ventures being attempted. From various centres we hear of a marked improvement in the iron trade, but it evidently has not become general, although prices are somewhat firmer. Some large stocks, however, are held, and makers are as yet not holding back in the expectation of a rise, seeing that the demand for rolled and foundry iron has not materially improved of late. Ironstone, too, has not gone up, and is as plentiful as ever, daily trains with it passing over the Midland between Northamptonshire and Derbyshire and Yorkshire; for the ores of the coal measures once so extensively raised in the counties named are now but little thought of, for they are inferior to those found in connection with the coals. The rolling mills have been kept moderately well going in merchant iron, but some of the foundries are rather quieter than they have been. House coal, so far as the London market is concerned, has moved off fairly for the season, 15,000 tons having been sent during last month from Clay Cross alone, and nearly 13,000 tons from Eckington. But prices do not improve, so that some of the colliery owners, so far from making a profit, must be losing money; and this, no doubt, they have been doing for some time. The miners at several places have not been working more than three or four days a week, their earnings running from 12s. to 14s. a week. They are, therefore, not able to give any support to those who may be out of work; and this fact led the men who had struck a short time since to resume work upon the terms offered to them. Steam coal has sold more freely, this being about the best time of the year for disposing of it, seeing that the railway companies are larger consumers in summer than in winter; whilst the exports are also much heavier. Ordinary engine fuel is still in but moderate request, but a fair business continues to be done in coke for manufacturing purposes.

In Sheffield some departments are less busy than they have been since the commencement of the year, and in few there is anything like what may be termed activity. The mills are less busy than they were, but at some of them there has been a steady output of ship and other plates, as well as wire and hoop iron. Steel rails are not in such good request, although there has been a considerable reduction in the price of them. Makers of crucible steel have been doing a steady business, and the demand promises to be larger, there being

a fair enquiry for exportation. America continues to be a fair customer for both the raw and manufactured, but not equal to what she was a few months since. Some of the cutlery houses are tolerably well off, especially as regards the finest qualities of knives, but the trade in the home markets is still dull, and will be so until the harvest is got in, when an improvement is anticipated. The foundries are comparatively quiet, and the same may be said as regards the engine and mechanics' shops. There has been no falling off in the production of pig, despite the decrease in the consumption of late, while prices are firmer; but as yet there does not appear to have been a general advance in prices, for some makers hold considerable stocks, and are desirous of seeing them reduced.

In South Yorkshire the house coal trade is particularly quiet, and what business is being done is at a low and unremunerative price, the persons most benefitted being the miners, most of whom, however, are only making about four days a week. Prices range from about 5s. 6d. to 7s. per ton for the best qualities, which cannot pay the owners; but pits, unlike ordinary works, cannot be allowed to be idle, for when that is the case considerable damage is done, whilst the dead rent is always going on. Steam coal is being sent away in large quantities, there being some heavy orders for exportation from the Humber, whilst a fair tonnage is taken for blast-furnace purposes. Gas nuts go off well for the time of year, whilst there is a steady make of fine coke, which is now taken at several places instead of that made in Durham, which it is equal to. The London trade in coal has fallen off considerably, more especially as regards Silkstones, which is attributed to the rate charged for carriage by the Great Northern Railway Company, and which it was expected would have been reduced, at least during the summer months, when the trade is so dull.

The proposed line of railway from Hull to Barnsley, for the purpose of developing the minerals of the latter district and exporting them from Hull, has passed the Committee Room stage of the House of Commons, and there is every reason to believe that it will go through that of the House of Lords despite the powerful opposition it has met with. The advantage of the line to the colliery owners can scarcely be over-estimated, whilst it will be of marked benefit to the merchants and shippers of Hull, as well as to the public of that town.

REPORT FROM THE FOREST OF DEAN.

July 15.—The Coal Trade, on account of its being localised to fewer collieries than formerly, indicates that for the season of the year the local trade is fairly active. It has undoubtedly been worse on the eastern side of the Forest than it is at present, but even there it is not so good as could be wished. Prices now range for the various qualities from 7s. to 9s. per ton, but large contracts can be made at a discount. For some years the land sale price has ranged from 2s. to 2s. 6d. per ton higher than that charged to merchants out of the district; sometimes, indeed, coal could be purchased at lower rates in the surrounding towns 10, 15, or 20 miles away. Now, however, various qualities of coal can be had at sidings for from 7s. 6d. to 9s. per ton. It is right to add, however, that the country trade, or land sale, terms on the western side have all along been less hard than on the eastern side.

Some improvement in view of contracts are reported in the Iron Trade, but production is still limited, and accumulations of pig at the Cinderford furnaces have reached several thousands of tons, which, it is stated, there is now some prospect of reducing. There is also a rumour respecting the probable starting of the works at Parkend at an early date. The tin-plate trade at Lydney and Lydbrook cannot be said to be in a satisfactory condition, and the wire trade is now, and has been for some time past, slack and unsatisfactory. Iron mining is still on a limited scale, and at one of the local mines, St. Annals at the Causeway, some indications of sinking of surface have occurred, so as to induce the tenant of Lattimer Lodge (which is over part of the mine) to vacate the residence. Some disputes, too, have arisen in the district respecting right of way through Abbot's Wood estate, as to whether a bridge way or simply a footpath was awarded by Mr. Commissioner Wetherell. Mr. Peter Constance, who has property at Sewdley, alleges that he has a right of bridge way, and acting on that view recently cut down the stile; while the owner of the estate alleges that there is only right of way as a footway. Whether the dispute will be settled by reference to the Commissioner or by litigation is not yet known.

SUMMARY OF BLAST-FURNACES OF THE UNITED KINGDOM, JUNE 30, 1880.

ENGLAND.		FURNACES IN BLAST.		Inc. or Dec.	
1879.	1880.	1879.	1880.	1879.	1880.
Cumberland					
53	53	52	31	43	38—Decrease 5.
Derbyshire					
53	53	54	31	41	39—Decrease 2.
Durham					
59	59	59	18	23	25—Increase 2.
Gloucestershire					
9	9	9	2	2	2—No alteration.
Hampshire					
1	1	1	0	0	0—No alteration.
Lincolnshire					
18	18	18	13	13	14—Decrease 2.
Lancashire					
49	49	49	38	40	34—Decrease 6.
Northamptonshire					
23	23	23	14	17	16—Decrease 1.
Northumberland					
4	4	4	4	4	4—No alteration.
Staffordshire, Sou.					
146	146	146	35	63	43—Decrease 20.
Staffordshire, Nor.					
36	36	37	20	24	21—Decrease 3.
Somersetshire					
1	1	1	0	0	1—Increase 1.
Shropshire					
24	25	25	7	12	12—No alteration.
Wiltshire					
7	7	7	2	2	2—No alteration.
York.					
48	48	48	23	31	31—Decrease 2.
North Riding					
109	109	101	71	82	82—No alteration.
Wales—North					
11	10	10	2	7	7—No alteration.
South					
143	152	151	54	71	72—Increase 2.
Scotland					
151	151	150	95	117	116—Decrease 1.
Total					
945	947	945	455	597	558—Total dec., 39.

Total number of furnaces built in the United Kingdom on June 31, 1880	945
Total number of furnaces in blast in the United Kingdom on June 30, 1880	558
Decrease in the total number of furnaces in blast since last return, March 31, 1880	39
Furnaces blown out since last return, March 31, 1880	54
Furnaces blown in since last return, March 31, 1880	15
New furnaces built since last return, March 31, 1880	4
Furnaces pulled down since last return, March 31, 1880	6
Decrease in the total number of furnaces built since last return, March 31, 1880	2
Increase in number of furnaces in blast on March 31, 1880, as compared with Nov. 13, 1879	142
Increase in number of furnaces in blast on June 30, 1880, as compared with Nov. 13, 1879	103
—Iron Trade Circular (No. 1218).	

FIRE DAMP.—In view of the relation which exists between the amount of fire-damp present in coal pits and the state of the barometer, an arrangement has been made in some Belgian coal pits so that the ventilating engines shall work faster the lower the barometer.

AIR WATER WHEELS.—An arrangement which has been constantly brought forward during the past three centuries has recently been once more provisionally protected by Mr. GEORGE COCK, of Devizes. The apparatus will be found fully described in Dirck's work on Perpetual Motion, and in most of the old works from which he quotes. The apparatus consists essentially of a number of collapsible bags or cylinders or equivalent, those bags opposite each other on the periphery of the wheel being connected together in pairs by suitable tubes or pipes. Upon that part of the bag farthest from the centre of the wheel is placed an iron or other weight, and suitable springs, levers, or other apparatus are provided upon the wheel for retaining these weights in position or releasing them when required. The framework is carried up so as to pass over the upper part of the wheel; the inner sides of the bags are all equidistant from the centre of the wheel. The mode of action need not be referred to, as the apparatus never has any.

TRANSMITTING MOTION.—The invention of Mr. JOHN SWALLOW, of Manchester, consists in transmitting motion from one cone drum to another by means of a friction disc or friction discs. He uses by preference a pair of friction discs running loose in suitable bearings in a moveable bracket or on shafts extending the full distance between the bearings of the cones; these friction discs run opposite each other one on each side of the cones, and between them, and with their peripheries as near together as is practicable. The cone drums may be placed in any position with their axes parallel. He applies pressure to the bearings of the cone drums or to the bearings of the friction

discs in order to obtain the friction necessary for transmitting power. In order to move the discs to regulate the speed he attaches a rod to the moveable bracket, but this may be done in any other convenient manner.

Registration of New Companies.

The following joint-stock companies have been duly registered:

WALMESLEY LE TAVERNIER AND COMPANY (Limited).—Capital 50,000l., in shares of 10l. To carry on the business of a wholesale and retail wine and spirit merchant. The subscribers are—E. A. Boycott, 26, Bruton-street, 400; D. P. Peplow, Hereford, 70; R. Price, Bala, 125; R. Moreton, 76, South Audley-street, 10; A. S. Lumley, 6, Wimpole-street, 10; E. T. Wolsey, 151, Cromwell-road, 1.

THE DIRECT SEA WATER SUPPLY (Limited).—Capital 100,000l., in shares of 10l. To supply the Metropolitan and suburbs with sea water. The subscribers (who take one share each) are—T. W. Smith, Court House; P. Rowden, 15, Orrington Gardens; H. W. Mason, 42, Carroll-road; H. Whitfield, 26, Bedford-place; H. Mason, 30, St. John's-lane; F. L. Jeyes, 9, Victoria Chambers; J. Alexander, 30, St. John's-lane; T. Mellor, 14, Cornhill.

THE ALMANSA RESIN AND TIMBER WORKS COMPANY (Limited).—Capital 20,000l., in shares of 5l. To manufacture and deal in resin, pitch, and other similar products. The subscribers (who take one share each) are—T. T. Jennings, Brixton; A. G. Spilsbury, Madrid; J. S. de Ulloa, Madrid; J. M. Palmer, 30, St. John's-lane; T. W. Martin, 32, St. Swinith's-lane; E. Schubert, 20, St. Swinith's-lane; T. Mellor, 14, Cornhill.

NORTH SUNDERLAND PIER AND HARBOUR COMPANY (Limited).—Capital 40,000l., in shares of 5l. To construct and maintain a pier and harbour at North Sunderland. The subscribers (who take one share each) are—D. Brown, Haltwhistle; J. Ewing, North Shields; C. Rowlandson, Durham; R. A. Stottar, Belford; G. W. North Sunderland; J. Burchester, Belford; W. Cuthbertson, North Sunderland.

THE COLONIAL AND UNITED STATES MORTGAGE COMPANY (Limited).—Capital 500,000l., in shares of 10l. The investment of money on all kinds of securities. The subscribers (who take one share each) are—A. Wilson, Hull; C. W. Wilson, Hull; Reokitt, Hesse; J. P. Clark, Hull; W. Wright, Wollaton; J. Hesse, H. Hodge, Hull; D. Haughton, Hull.

THE BIRRESBORN NATURAL MINERAL WATER COMPANY (Limited).—Capital 50,000l., in shares of 5l. To acquire an estate in Prussia, and to sell, deal in, and dispose of the mineral waters thereon. The subscribers (who take one share each) are—T. W. Martin, 32, St. Swinith's-lane; J. Palmer, Southwark; Wood, 32, St. Swinith's-lane; C. Rawlinson, 81, Gracechurch-street; H. Kaufman, 81, Gracechurch-street.

THE SUBURBAN AND COUNTY CO-OPERATIVE SUPPLY ASSOCIATION (Limited).—Capital 30,000l., in shares of 10l. To carry on the business of a co-operative society in all branches. The subscribers (who take one share each) are—F. S. Mottram, 34, Argyle-street; J. M. Kearton, 81, Abingdon Villas; J. Wallington, Highgate; Tunlin, 51, Moorgate-street; E. A. W. H. Rhys, Teddington; C. W. Wood, 32, St. Swinith's-lane; A. G. Spilsbury, 30, St. John's-lane; T. W. Martin, 32, St. Swinith's-lane; J. Palmer, Southwark; Wood, 32, St. Swinith's-lane; C. Rawlinson, 81, Gracechurch-street; H. Kaufman, 81, Gracechurch-street.

THE GENERAL MORTGAGE AND INVESTMENT COMPANY (Limited).—Capital 50,000l., in shares of 5l. To advance money upon mortgages, &c. The subscribers (who take 20 shares each) are—J. H. 85, Hereford-road; J. T. Keene, 455, Oxford-street; J. Smith, 10, J. Taylor, 36A, Wood-street; W. Wilde, 111, Portofino-street; Wilde, 51, Moorgate-street; R. Rolph, 13, Copthall-court.

THE STALEY BROOK SPINNING COMPANY (Limited).—Capital 20,000l., in shares of 10l. To carry on the business of cotton wool spinners, weavers, manufacturers, &c. The subscribers (who take one share each) are—G. Heywood, Oldham; W. B. Oldham; W. Myott, Oldham; W. Norton, Oldham; H. B. Staley Bridge; J. Worthington, Staley Bridge; A. Staley Bridge.

LA KEYNA MINING COMPANY (Limited).—Capital 20,000 shares of 10l. To acquire by purchase or otherwise a mining property situate near the Southern Coast of Spain, or any other mining rights. The working, winning, manufacturing, calcining, reducing, or refining the materials from such mines, concessions, grants, setts, &c., and preparing for sale and disposal the minerals, ores, and substances found on the properties of the company. The subscribers (who take one share each) are—J. F. 2, Queen's-square-place, C.E.; E. Woods, 3, Great George-street; R. Peacock, Manchester, engineer; J. Fraser, Leeds, C.E.; E. W. 15, Southwark-street, merchant; C. W. Wardle, Leeds, engineer; W. Baldry, 2, Queen-square-place, C.E. The number of shares must not exceed seven, or be less than five. Remuneration of board 200l., subject to increase. The following are the first directors:—J. Fowler, E. Woods, R. Peacock, J. Fraser, and C. W. Wardle.

KENNAWAY AND COMPANY (Limited).—Capital 100,000 shares of 10l. To carry on the business of hotel-keepers and victuallers, &c. The subscribers are—E. M. Pierce, Strawberry 1100; H. W. Houlditch, Exeter, 395; C. H. Thompson, Exeter, W. Emmett, Exeter, 270; D. F. Pierce, Exeter, 40; H. Houlditch, Exeter, 5; J. B. Dawson, Isleworth, 50.

AINSWORTH BROTHERS AND COMPANY (Limited).—Capital 120,000l., in shares of 25l. To prepare, manufacture, and do cotton yarn and other fibrous products and materials. The subscribers (who take one share each) are—W. Ainsworth, Birkenhead; P. F. Ainsworth, Harwich; J. Ainsworth, Edgeworth; F. Ainsworth, Edgeworth; J. Haydock, Great Lever; J. Lathan, Halliwell; Winder, Bolton.

LINCOLN AND LINDSEY BANKING COMPANY is registered under the Limited Liability Acts 1862 to 1880.

CARMINE SALT.—An American firm are introducing a preparation of Carmine Salt, which, when applied to parts of machinery, is to injurious heating, will change colour should any excessive heat take place. In 1849 the Americans made only 24,318 tons of it; in 1857 the total reached 195,454 tons; and last year made 1,113,273 tons.

PETROLEUM IN ITALY.—In a letter published in the Pungolo, attention is called to the existence of petroleum in the province of Basilicata. It is by no means a recent discovery, for the writer himself says that when he was at Marsiconovo, 40 years ago, examined the asphalt which was found there in abundance and of excellent quality, he observed large bubbles of petroleum floating on the surface of some streams. On digging for the foundations of a mansion in the same district there was a strong gush of petroleum, but the well was closed, as there were no roads nor facilities of transport. The thought of utilising this hidden wealth (and there is, I believe, of the same description in Basilicata and the neighbouring provinces) for there were no roads, communal, provincial, or national; and the same system of government been continued the ground would have yet been undisturbed. Signor Venini-Poma, who has submitted a petition for coal in heating steam boilers, claims to be the first to so applied it. Prof. Casola, however, an eminent chemist who well remember, was the author, it is asserted, of the system locomotion by petroleum. He had an establishment in the Castello, which was filled with specimens of the various kinds of asphalt found in the far south, and there he made many experiments and proved the locomotive power of petroleum. It was Casola who discovered the petroleum of S. Giovanni Incoronato, would have done much with enlightened encouragement to have proved the economic conditions, especially of southern Italy, thwarted and discouraged, he died of a broken heart. I think many of the facts now brought before the public, and I think it is the time for speculators to visit those districts and study the valuable products lying hid beneath the soil could be economically utilised.

most output we have made. The productive power of the country in regard to both coal and iron is far in excess of the demand.

The CHAIRMAN then moved, and Mr. KELLY seconded, the re-election of the retiring directors, the Right Hon. Henry Cecil Raikes and Mr. John Thomas Bowden. This was agreed to unanimously.

Mr. RAIKES, in returning thanks, said: I have been connected with this company from the very commencement, and I remember at our first meeting Mr. Wilson saying we must not expect dividends for three or four years; we have been 7 years in earning one as a matter of fact. I am, however, glad to see both Mr. Wilson and other old shareholders here to participate in it now it has come.

The CHAIRMAN, in proposing the re-election of Mr. W. E. Bagshaw as auditor, suggested that that gentleman's remuneration should be increased from 25 to 35 guineas. From positive information he possessed he knew that that gentleman simply worked for nothing comparatively.—Mr. RAIKES seconded the motion, which was agreed to *nem. con.*

Mr. WILSON proposed a vote of thanks to the Chairman for his attention to the affairs of the company, and for the ability with which he had presided over the meeting. He also gave great pleasure in associating with the motion the names of the other directors.—Mr. KELLY seconded the motion, which was carried unanimously.

The CHAIRMAN returned thanks for himself and the members of the board. They would, as heretofore, do all in their power to promote the prosperity of the company. He could only hope that their future labours might be even more successful than those of the past.—The meeting then closed.

SOUTH WHEAL FRANCES.

The four-monthly meeting of adventurers was held at the mine, on Tuesday, Mr. S. ABBOTT in the chair.

The notice convening the meeting was read, and the statement of accounts submitted, showing a profit on the 16 weeks of 2475*l.* 10*s.*, raising the available balance to 4412*l.* The report of Capt. A. T. James and John Opie was then read. In this report it was stated that an engine-house and stands were being built with all possible speed to receive a 30-in. engine for pumping water and drawing stuff, which was now on the ground. This would be made available as quickly as possible. They had entered into a contract with Messrs. Schram and Co., of London, to drive 100 fms. in the 185 west, and about 60 fms. in the same level east, at hand-labour price—12*l.* per fathom—the contractors laying down all necessary plant, and providing everything they might require to complete the contract. It is intended to drive the 115 west under the new engine-shaft (this level would prove the value of the 115 west in length), and to drive the same level east under Marriott's engine-shaft, then to rise against it at a price to be mutually agreed on by the parties concerned. The pitwork could then be brought down to the 185 instead of remaining at the 155, where it now stood. Marriott's shaft would then be available for drawing stuff from the flat lode as well as for pumping water. This when accomplished would be a great benefit to the mine. They were pleased to say that they had sold about 3 tons more of tin ore for this account than was sold for the previous one, but the price obtained was about 115*l.* less money, which was equal to about 8*l.* 3*s.* less per ton as compared with previous account. They were unable to say that about the same quantity could be sold in the coming 16 weeks, but they hoped some improvement would take place which would enable them to sell more tin than they at present anticipated. Every effort would be made to sell about 8 tons more if possible, but they were unable to say from present appearances how it could be exceeded.

The CHAIRMAN called attention to a letter received from J. L. Bolden, Mr. Basset's agent, with reference to the communication which has been made between South Frances and West Basset, in which that person expressed the hope that Captain Josiah Thomas's dialling might have been obtained, that a statement might have been laid before the meeting as to whether the adventurers were liable to pay Mr. Basset the penalty of 500*l.* mentioned in the set. The Chairman said that it was true that according to the strict terms of their lease a penalty of 500*l.* was attached to the breaking of a 5 feet barrier between the two mines. He believed the penalty was inserted in the new lease after the dispute which arose between the two mines (South Frances and West Basset), and the penalty was attached to it simply to prevent disagreement between the two mines in future. He could not for a moment believe that there could be any intention to inflict such a penalty as that on that breach of covenant. He felt very strongly on that point himself, and thought it would be a direct act of injustice on the part of the lord to demand a penalty of the description named in the lease; and he believed if a representation was made to Mr. Basset he would carefully consider the matter. It was a fact that Captain James did not think the dispute arose on the boundary, but even supposing they were he did not think the lord under the circumstances would be justified in demanding the extreme penalty for such a breach. His own idea was that it would be desirable that a deputation should go to Telford to represent the case.

Mr. A. LANTON thought they had no need to fear of the claim being enforced by Mr. Basset, as such a thing was not in accordance with his usual actions.

Mr. J. CLAUDE DAUBUZ said a similar notice had been received that morning at West Basset. He was a member of the committee of West Basset when the new lease was granted in 1872, and the clause was inserted strictly with the understanding that it was to prevent the two mines from quarrelling, but they never dreamt that the 500*l.* would ever even be asked for, or if asked for, enforced. He hoped that when the matter was properly represented to Mr. Basset or his agents it would be looked upon in that light.

Mr. H. WADSWORTH thought they would have no difficulty in arranging an amicable settlement of the matter with Mr. Basset. He considered that it was a benefit to the mines that a communication should be made between them. Mr. LANTON said that it was a matter, in his opinion, which would be best readily and easily arranged between the executives of South Frances and West Basset and Mr. Basset.

The report and accounts were adopted, a dividend of 10*s.* per share declared, and a resolution passed for getting the alleged barrier encroachment arranged.

Mr. HITCHINS, a London metal broker, with reference to the position and prospects of the tin trade, said that he would predict that the day was not long to come when Cornishmen would see prices that they had, perhaps, rarely seen before. He would not say 160*l.* per ton, as on one occasion, before the great deposits were found in Australia, but he did say this, that the production all over the world was not increasing. He would move the motion that the Billiton, which was a great competitor, had declined 9 per cent. in production. The tin to Banca, the Dutch Trading Company said they did not intend to sell more than 20,000 slabs, which would bring the sales 1/4, or 15 per cent. less. The production of tin in Australia was not increasing—it is decreasing. They had the facts and figures before them. There was a great bugbear about the enormous quantities of tin sent from the Straits, but it was only a bugbear. Figures would prove, and Americans would show, that they were using double the quantity of tin they did five years ago—1200 tons a month—and their stock was not 7000 tons, but 4000, a little three months' supply. It was said that there was a great deal of tin coming home from Australia and 200 tons had been purchased at a high price, and telegrams were sent about, and the Americans sent their orders to the Straits so as to secure their orders for the future. This was the origin of the rise in the market in London, and it was only owing to similar operations that tin was knocked down in the face of improving statistics and increasing consumption. (Applause.) There were 4000 tons less in stock now than at this time last year, and this represented one-fourth of the whole of the stock. He said that, in face of about five months' supply before them, for tin to go down from 100*l.* a ton to 68*l.* there was no reason whatever excepting market operations. They must remember that tin was a metal that was consumed, and could not be worked over again like copper or lead; 30,000 tons of tin disappeared every year from the face of the earth just as much as if they threw it into the Atlantic. The Americans in seven years bought 1,300,000 boxes of tin-plates, and last year 27,000 boxes. New factories had been established in the tin-plate trade, and large quantities of tin-plates were now wanted for oil-cans in America, one order having been received for from 12,000 to 15,000 boxes. The consumption was extending not only in America, but in Europe, Norway, Sweden, in Australia, and New Zealand. One gentleman told him recently that it was quite possible he should soon be supplying tin-plates for bringing flour from America instead of barrels. Only a few days ago an order had been given for 5000 boxes of tin-plates for preserved oysters, so that the consumption was rolling along, and they would find it would be faster than their production, and their property would increase in value to an extent which they did not anticipate. As to weak holders in tin that was most absurd. Three or four months ago the value of the total stock of tin was about 600,000*l.* Now it was very easy matter to finance tin in with bankers or financial houses with a margin of 10*l.* per ton, so that anyone with 50,000*l.* could have taken the whole stock off the market. The Times had repeated the assertion that tin was in weak hands; but, as a matter of fact, tin was in a very strong and sound position, and he believed that during the next few years stocks would be lower than they are now.

The usual complimentary votes terminated the proceedings.

WEST BASSET MINING COMPANY.

The three monthly meeting of adventurers was held at the mine on Tuesday, Mr. J. CLAUDE DAUBUZ in the chair.

The usual preliminaries having been disposed of the statement of accounts showing a credit balance of 1223*l.* 11*s.* 5*d.* The agents' report stated that "at Thomas shaft the lode in the 144. east of shaft, is looking well, and is of a massive character, the part on which we are driving is worth 12*l.* per fm. The hole in the end, to the west of shaft, is worth 20*l.* per fm. These ends have been driven respectively 5 and 9 fms from the cross-cut. The boring machine is at work in both the above ends, and we expect to drive at least 12 fms. a month. This part of the mine is opening out quite equal to our expectations, and bids fair in the course of a year or two to become a mine in itself. The stopes throughout the mine are worth on an average 12*l.* per fm."

The CHAIRMAN said that at the April meeting it was hoped that on the present occasion there would have been a surplus balance of profits for division amongst the shareholders, but owing to a somewhat lessened production in the past quarter, and an average price for black tin less by 7*l.* 7*s.* per ton than when they last met, it would not be wise to make a dividend that day. More than sufficient profit had, however, been made to wipe out the adverse balance of the last account, and the committee congratulated the shareholders on the extinction of the heavy debt, which at one time seriously threatened the very existence of the mine. In the month of May and beginning of June, seeing prices, as they considered, unduly depressed, the committee ordered the stocking of next month's tin, and the subsequent recovery in the market had entirely justified their action in this matter. The new air-compressing machinery had been working very satisfactorily during the last few weeks, and was at present driving two drills in the

eastern part of the mine. A third drill was employed in a rise in the 132, west of Greville's, and additional drills would probably be set to work steadily in other parts of the mine, but the delay in getting the machinery in full working order would to some extent account for the reduced term.

The CHAIRMAN, with reference to the letter as to encroachment from Mr. Basset's agent, said that they must all regret the encroachment, but he did not think they need trouble themselves. The clause fixing the 500*l.* penalty was inserted to prevent the two mines from having a quarrel and wasting a lot of property, as they had done previously. If it were enforced it would be a great piece of hardship and injustice.

On the motion of Mr. R. T. MITCHELL, seconded by Mr. WOOLCOCK, it was resolved that the committee be authorised to confer with the representatives of South Wheal Frances, and arrange for a discussion with Mr. Basset with reference to the encroachment, with a view to an amicable arrangement; and as the communication between South Frances and West Basset is of mutual advantage to the two sets of adventurers, and more advantageous to Mr. Basset than to either (indeed, it seems that he has already received dues upon ore raised from the barrier), no serious obstacles are anticipated.

EMPIRE SUMMIT GOLD MINING COMPANY.

The first ordinary general meeting of shareholders was held at the offices of the company, Angel-court, Throgmorton-street, on Saturday last, Mr. LUND in the chair.

Mr. MERRICK (secretary) read the notice convening the meeting. The CHAIRMAN said this was the statutory meeting of the company, called in accordance with the Acts of Parliament regulating the proceedings of Joint-Stock Companies. Before the company was formed they were desirous of confirming the reports made on the property by the vendors, and, in reply to their enquiries, letters had been received from several gentlemen, which Mr. Andrews would be kind enough to read. The reports of the assays of the ore which they had had made seemed to be of the very best description, and these also, as well as the agent's report, would be read by the secretary.

Mr. ANDREWS remarked that the directors applied to sundry gentlemen who knew the Empire Mine for statements calculated to verify or otherwise in their judgment the statements in the prospectus. Amongst other gentlemen they applied to Mr. Peterson, who was the discoverer of gold on South Mountain, where the Empire Summit Mine was situated, and who was for five years superintendent of the Little Annie Mining Company. This gentleman writes—"I have seen the Empire lode in Summit district, and found it a large ore body. The ore of the Empire looks well, but I have never tested the richness of it. There is a good mill site within a short distance of the mine. The Little Annie I have managed for the last four years; our average has been \$32-100 per ton of 2000 lbs. The stream has undoubtedly a bright future. A rich strike has been made lately on a mine adjoining the Empire lode."

In response to a similar request Judge T. M. Bowen, the superintendent of the San Juan Mining Company and the Golconda Mining Company, writes—"As to the Empire lode claim I will say that I have often seen it, and have watched its development from the first with a great deal of interest; the ore is substantially the same as the Annie, Ida, Golconda, and other ores, which the owners believe to be very profitable. My faith in the district is evidenced and demonstrated when you consider that I have spent the last five years in its development, and am still exerting myself in the same direction, being the owner of more mining property there than anywhere else."

The importance of the reference to the Ida ore will be found in the fact that the rich ore mentioned by Mr. Peterson has been found in the Ida Mine since Mr. Bowen's letter was written. I will come back to this subject, but for the present confine myself to further confirmation of the vendor's statements. Mr. F. A. Dilworth, an ironmaster of Pittsburgh, Pa., says: "I am personally acquainted with the Empire Mine, and was down in the Discovery shaft in September, 1879; the width of the vein I found to be from 10 1/2 to 11 ft. between the walls, and the ore apparently of the same character all the way across the vein. It is about 300 ft. from the Little Annie Mine, and the vein can be traced on the surface about 800 ft."

Mr. GEO. E. WRIGHT, of Chicago, writes: "I am acquainted with the location of the Empire gold lode in Summit district, Rio Grande County, Colorado, and was in the district from June to October, 1879. I was at the Empire lode a number of times. The vein is between 40 and 50 ft. deep, it is a well-defined crevice 10 1/2 to 11 ft. wide at bottom of shaft, with two well-defined walls. I have traced the vein to Wickham Gulch, a distance of 800 ft., there the crevice shows on surface about 25 ft. wide. In my opinion it is the main lode of the district. The ore in the Discovery shaft seems to be of the same character from wall to wall. There is a good location for a mill about 1500 ft. from the mine at Wickham Gulch. The mine and mill can be operated 250 to 275 days a year."

Mr. Robert B. Croach, of Chicago, visited the mine in September, 1879, and writes in general confirmation of the foregoing.

We have, therefore, in these letters, gentlemen, a complete verification of all the statements contained in the prospectus. The size of the vein at Discovery shaft and at Wickham Gulch is now an established fact; indeed, we have resumed the driving of the adit on the lode in Wickham Gulch, and have a face of 25 ft., which Mr. Burrows says in his last letter is good ore all the width. You will also remember that we based our calculation of profit on the ore averaging 1 1/2 oz. of gold—\$30 per ton; and you observe that our neighbour with ore which Judge Bowen says is substantially the same as ours obtained during four years close upon 2 ozs. gold per ton, and this I am advised is exclusive of the rich grades of ore which were selected and sold elsewhere. In order that we might learn the constitution of our ore, we sent the sample, which assayed 33 1/2 ozs. gold, to Mr. Fred. Claudet for analysis; the result of this examination is eminently satisfactory. We find that the ore does not contain anything likely to interfere with the extraction of the gold which is contained in the ore in a very fine state, and is free gold. Mr. Claudet says that we ought to save at least 90 per cent. of the gold on an ordinary Californian stamp mill table. He returns 38 ozs. 14 dwts. gold per ton. You remember that Mr. Burrows maintained that the sample in question was a fair average sample of the whole of the ore then at surface, and which he estimated to amount to 300 tons. He returned to the mine on June 1, and repeats this assurance in his recent letters, and goes on to say that in a month or two he feels satisfied that he will be able to ship ore worth \$1000 per ton. We have recently received two samples of Empire ore; the first, which came by post, assayed 216 ozs. gold per 20 cwt., and a portion of the sample you see on the table goes higher—281 ozs. gold per ton. The last was taken by Mr. F. Claudet. Neither of these samples showed free gold, but they were both picked out from the dump. It is important for the company to ascertain whether any quantity, and, if possible, about how many tons of similar picked ore could be shipped during this summer. I need not enlarge on the subject of the dividend we could pay this year, if (say) 50 tons of equal value could be realised this summer. And to show you that this prospect is not improbable I will now return to the discovery which has created much stir in Summit district, and is known as the "Bowen's Bonanza." Referring to it, Mr. Burrows, writing under date June 5, says—"I have examined the Bowen strike, and found it, to my surprise, much larger and richer than I expected; he has a 15-ft. crevice well defined. We prospected it all the way across, and, if possible, about how many tons of ore there are 4 ft. in the centre of the crevice covered with free gold. I must say it is the finest thing I ever saw in the shape of a lode, and what makes it more important is that the course of the vein runs right towards the Empire. Judge Bowen told me yesterday he thought the Empire was on the same vein." Again, on June 12, his last letter, he says—"I am going to start a tunnel as low down as I can, about 150 ft. below Wickham Gulch. I am satisfied that by running 200 ft. I will find ore that will run close to 200,000 per ton. I am certain Bowen's big strike and the Empire are on the same vein." We do not know the exact value of the Bowen's strike; it has been variously estimated from \$10,000 to \$32,000 per ton. Neither is known is the value of the ore which the Little Annie shipped away. All that is known is that it was rich. We are informed that the latter company is about to increase its mill to 100 stamps.

The CHAIRMAN, in answer to questions, stated that he could not at present delineate the exact course of the railway now being constructed between Alamosa and Pagosa Springs. He had been informed that it would come within 10 miles of the mine. Certainly it is important that the railway should come near to the mine, and that the district should be made accessible and easy of travel during the winter months.

General satisfaction with regard to the future of the property was expressed by two or three of the shareholders present.

On the motion of Mr. DOWLAND, seconded by Mr. POSTLETHWAITE, a vote of thanks was passed to the Chairman.

The CHAIRMAN briefly acknowledged the compliment, and the meeting then closed.

[For remainder of Meetings, see to-day's Journal.]

THE RED ASH COLLIERY (Monmouthshire).—Mr. W. B. Graham (W. Graham and Son) conducted a sale at the Westgate Hotel, Newport, of the valuable Red Ash Coal Colliery, Aberystwith, and connected by a siding with the Monmouthshire Railway at Aberbeeg Junction. The attendance at the sale was large. The sale had been directed under the authority of the High Court of Justice, Chancery Division. The first bidding was 1000*l.*, and it speedily ran up to 6900*l.*, which was within 100*l.* of the vendor's bid. Beyond this sum it would not go, and the auctioneer, much against his inclination, stated that he was obliged to put on the vendor's bid of 7000*l.* and to withdraw the lot. He would, however, be glad to treat with any gentlemen privately for the disposal of the property.

SALE OF TIN BY TICKETING.—On Wednesday 75 tons of tin were sold by ticket—the particulars of which are appended:—

Carn Brea—50 tons.	Tincroft—30 tons.	Wh. Peavor—25 tons.
Daubuz.....£51 12 6	.....£50 2 6	.....£50 12 6
Boltho.....51 12 6	.....50 2 6	.....50 12 6
Williams.....51 12 6	.....50 2 6	.....50 12 6
Redruth.....51 12 6	.....50 2 6	.....50 12 6
Penpol.....50 17 6	.....50 10 0	.....50 10 0

It will be seen that the Penpol Company was 15*s.* per ton below those of the other companies for Carn Brea ores. For Tincroft ores, on the contrary, they were buyers at an excess of 7*s.* 6*d.* per ton. For Wheal Peavor tin, Penpol Company lost the tender by 2*s.* 6*d.* per ton only. An adventurer in these three mines says:—We may be well pleased at the result of this ticketing, as we have not only an advance of 3*l.* in the standards, but, as far as I can form an opinion, I should think that Carn Brea ores have brought quite 1*l.* per ton more than what they would have fetched had they been taken to the smelting-house in the

usual way, and, at any rate, a clear gain of 15*s.* per ton has been realised. Carn Brea ores were sold possibly at a produce of 12 1/2*l.*. Tincroft is also a good price as times go—probably the ores have brought about 10*s.* per ton more than if they had been sent to the smelting-house; the produce, I should say, is about 12 1/2*l.*. Wheal Peavor ores also fetched a good price. If sent to the smelting-house they probably would not have realised so much by 10*s.* per ton. The tenders of the old companies were all exactly alike, arranged, of course, beforehand. So far as they were concerned, therefore, selling by ticket is a farce.—West Briton.

FOREIGN MINES.

SIERRA BUTTES (Gold).—Result of the working at the Sierra Buttes and Plumas Eureka Mines for June:—Sierra Buttes: Total receipts, \$24,781; total working expenses, \$22,043.—Plumas Eureka: Total receipts, \$46,296; total working expenses, \$21,524.

CAPE COPPER.—Returns for May: Ocklepe, 1200 tons of 29 per cent.; Spectakel, 120 tons of 87 per cent. Bills of lading received, 470 tons 3*l.* ore per Alamosa, 640 tons per Hinda, and 610 tons per Antonio Vincent. Arrivals at Swansea, Alamosa, Beal, Aneroid, and Golconda.

RUBY AND DUNDEBERG CONSOLIDATED.—Copy of telegram received from Eureka, dated July 13: The ore smelted during the week was 78 tons, and realised net about \$38 1/2 per ton. The quantity of ore extracted during the week was 30 tons.

COPIAPO.—J. B. May Hall, 81: Dulicinea: There is nothing of importance to report from either of the mines. The Dulicinea on the whole is not looking quite so well. Some of our principal points are holding out well, whilst others have depreciated a little in value. We have still a very good lode in the 70 end south. The 170 end north is still poor, but a very fine lode. The shaft is still still producing some very fine stones of ore. During the present month we have started to drive the 130 end south, which had been suspended for years. This lode was very poor when we commenced, but after driving a couple of meters we have struck a good branch of ore. I am of opinion that in this direction, or in future, at Chico we are still struggling to keep up our returns. The north lode that we intersected at the 40 has not been sufficiently opened out upon to ascertain its value. We know that it is of a very fair value in the Main lode Mine. Your instructions in reference to searching for lost lodes was two days too late in connection with this point. We had reached the lode two days before your letter arrived.

NEW GOLD RUN.—F. M. Chadbourne, June 23: After looking very roughly to find a second-hand 10-stamp mill to put up in the Gold Run claim I failed to find anything suitable, or one that in my judgment would pay to lay at any price, and I decided to purchase new machinery. I have been to San Francisco and ordered the mill complete of the Miners' Foundry. I got better terms from them by several hundred dollars than with any of the other foundries. The price to be paid on delivery of the machinery is \$2210. The specifications or draft will be here in two days, when the work can commence.

The machinery will be shipped in from 15 to 21 days from the day it was ordered, and will be here by the time the wood work is ready. (I ordered it yesterday, June 22.) I shall have it erected and working as soon as it is possible to do so, which I think will be about Sept. 15. I found upon closer examination of the ground where the mill will be erected that the dirt must be brought to the mill on an incline which will require a small hoisting machine. This makes the machinery about \$300 more than it would be without it. Work for hydraulic mining is progressing splendidly. Water will be turned on and everything running complete on Tuesday, June 29. I am sure of making two good runs this season.

JAVALE.—Extract from manager's letter, dated June 6: Mr. Chambers, after reporting the death of Mr. Hennecke, writes that 37 1/2 vases were driven in the mine, but only 17 1/2 actually produced quartz; the others were in dead ground. The remainder of stuff crushed was taken as usual from manto and deposits. I am happy to say that the greater part of the work which has to be done in dead ground is over, and I have every hope of being able to bring down very good quartz for the coming months. In Concepcion Mine we have not yet come across the lode, and to avoid expense I have stopped driving, and intend to take the manto until more prosperous times.—Mill and Remittance: The mill worked twenty-three days, with 25 stamps, crushing 1750 tons of quartz, which yielded 471 ozs. of smelted gold. It gives me the greatest gratification to be able to show you such an improvement in the average value of the quartz. This time it is 5 dwts. 3 grs., and it has not been so good for 12 months. I feel sure that the bad times are passed, and that we shall gradually go on improving. I am having all the necessary repairs made before the wet season; there are many required, but none of a serious character, as, generally speaking, everything is in excellent condition. We have hope of having rain during this month, and there may be a possibility of our being able to work with water before the end of the month.

Tallings Mill: For want of water, and our having to repair the turbine, this machinery was not worked during the past month. In the course of the coming week I hope to have everything in order, and then commence to work, even if it is only with one pan and a settler, as I doubt if there will be water for more than a few days. In the meantime I am having the blankets diligently washed and the stored. The expenditure was \$92*l.* 13*s.* 3*d.*, the remittance was valued at \$24*l.*, thus leaving a balance profit of \$307*l.* 6*s.* 9*d.* The large sum (nearly \$1000) which I had to pay for firewood caused the expenditure to be rather high, but I trust that no more will be required this year, as we have a large stock on hand, more than sufficient for the whole of this month.

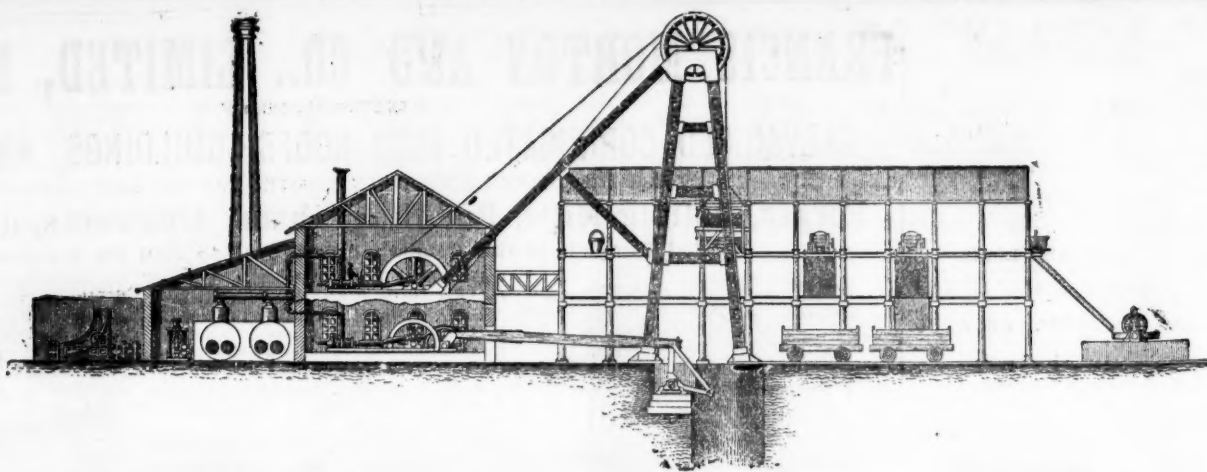
CHONTALA.—Mr. White, June 5: Total quartz treated at the stamps 400 tons, which produced 111 ozs. of gold, or an average of 5 1/2 dwts. per ton. The value of the gold, 305*l.* 12*s.*; cost for the month, 231*l.* 12*s.*; total, 24*l.* With this amount we have also put the machinery and mines in first-class condition against the rains set in, so that there may be no let or anything wanting, and according to the present appearance of Estrella Mine profits will be then secure. We expect within a few days to get a supply of water, which I now have every confidence will enable us to make good and profitable returns.—Mines: At San Sebastian there has been nothing done during the past month.—Estrella Mine: We stopped from No. 1 slope 131 vases; lode 4 ft. wide, worth 5 dwts. to the ton. Stopped from No. 2 slope 102 vases; lode 3 ft. wide, worth 5 dwts. to the ton. In the above stopes during the last fortnight we have got into a profitable run of quartz, which still holds good, and looks very promising for the future in the western ground. Drove main level 8 vases; here the ground in the end has been hard for progress, but now showing indications of improvement, and the lode producing more gold. I think we may rely on having something good here after we have passed this hard bar of ground. Total quartz raised from Estrella during the past month 505 cars or 454 tons, worth on an average 5 1/2 dwts. to the ton.

EFFUENTA (Gold).—The manager's report states that 37 fms. has been cleared on north side of the hill, and a bridge 300 ft. long and 8 ft. wide has been thrown across the swamp to facilitate communications during the rains. Barns, store-house, and powder magazine have been erected. The position of the end having been, as was believed, fully ascertained, two drifts were being driven towards it, and pushed forward with all possible speed. On April 29 there were respectively about 30 to 100 ft. to be excavated before reaching the supposed end. The drifts open 30 ft. above the valley, for the convenience of placing and working the stampers. The machinery—including steam-engines for working saw-mill and saw-bench, for preparing timber for building and the mines, and for working the stamper—the stampers for crushing the ore, &c., a steam haul for the Ancobra river, and steel rails, cars, &c., for drift work, having all been provided, the heavy portion of the expenditure has been already made. There have also been erected at the mouth of the Ancobra river, at Tormento, and at Bonza station. The manager and mining engineer continue to express encouraging hopes of proximate success.

[For remainder of Foreign Mines see to-day's Journal.]

TURBINES IN MINES.—In connection with mining operations Messrs. PARKE and LACY, San Francisco, are now successfully introducing a turbine, a convenient modification of the "Patent Globe Case," which has been in use a number of years. The object attained in this new arrangement is economy of space and the application of an extremely small inlet and head-pipe, this latter being accomplished by a peculiar arrangement in the upper or interior part of the casing. The new design, according to the Mining and Scientific Press, affords also a great saving of power by means of the use of anti-friction bearings, which can be oiled, the whole being accessible and subject at any time to examination. The design is intended particularly for mining purposes and for small wheels under high heads, where the use of gears is not only difficult of arrangement and of keeping in order, but frequently impracticable otherwise. The horizontal shaft of the water-wheel, on which is placed a pulley, affords not only the simplest but the most efficient means of connecting the power to the point where it is desired to be used. This is easily effected, and any amount of power transmitted and motion obtained that may be desired, by properly proportioned pulleys, with light but sufficient bearing. The method is not only applicable to mining purposes, but frequently may be attached to saw-mills and other machinery where a simple and efficient arrangement is desired. The improved horizontal wheel is admirably adapted for mining, pumping, and other purposes, and where it is desired to have the greatest power in the least possible space, having the smallest conducting pipe that can be used and the simplest communication of the power to the work.

MOELFRA WHEEL FORTUNE.—It is understood that the lease of this property has been granted on equitable terms to two Cornish miners of some experience, and that they have already commenced operations by driving a deep adit cross-cut from the foot of the hill for the purpose of intersecting two known and valuable lodes. It is stated that although only driven a short distance favourable indications have been met with. The ground is congenial for large deposits. The intersection of the first lode is expected at 12 fms., and the second, which is a large and masterly lode where seen, will probably be met with a few fathoms beyond. This lode at surface is said to present unmistakable evidence of yielding large returns of lead ore, being many yards wide and producing near the surface excellent gossan, flookan, carbonate of lime, and lead ore embedded in a favourable channel of killas or clay-slate; in fact the lodes bid fair to make the property one of the richest in Montgomeryshire.



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 Supplement, April 1, 1876, containing a report on property of the Maxwell Land
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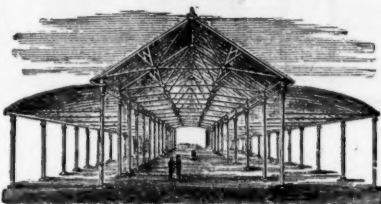
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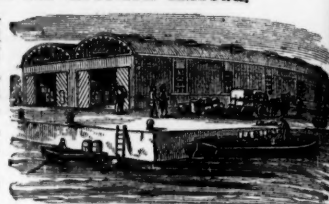
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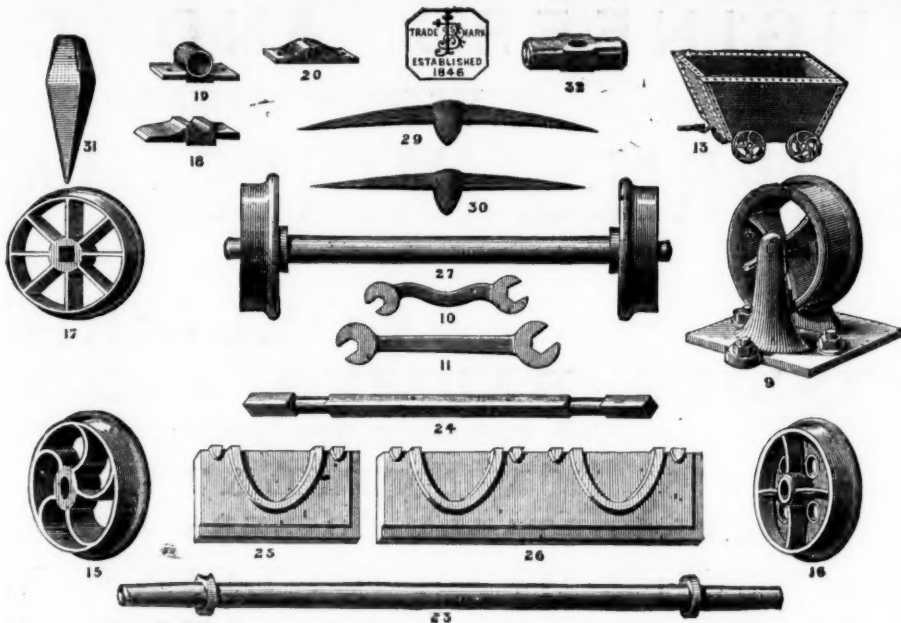
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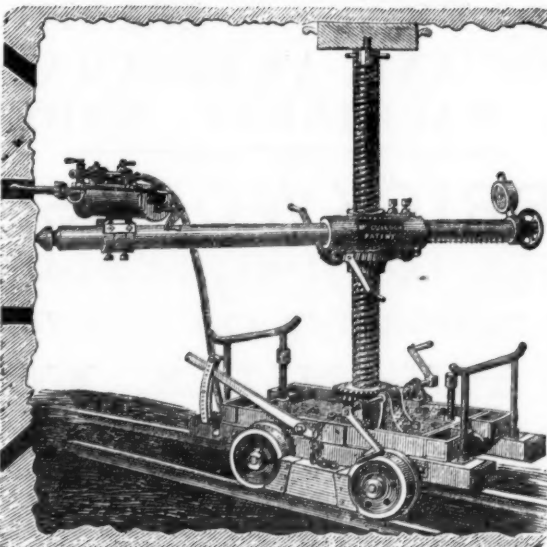
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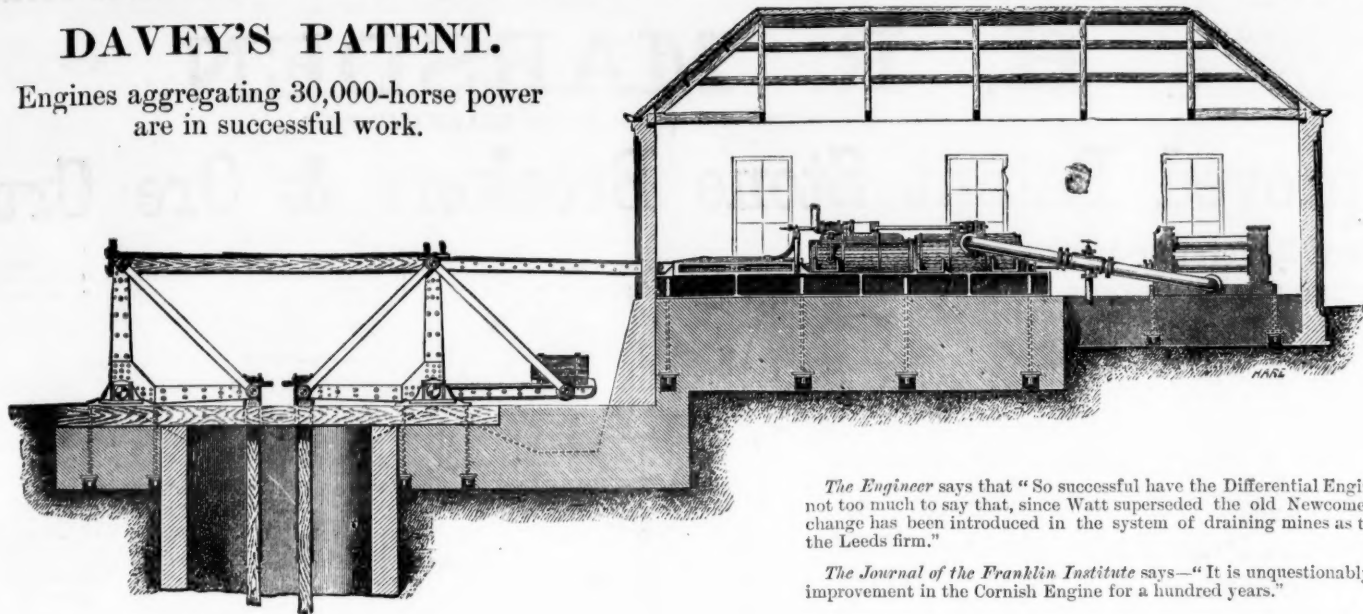
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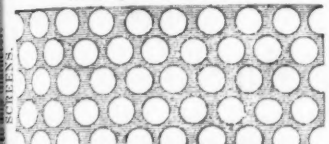
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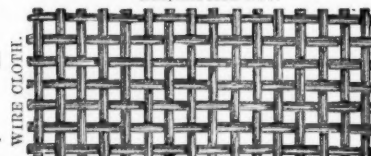
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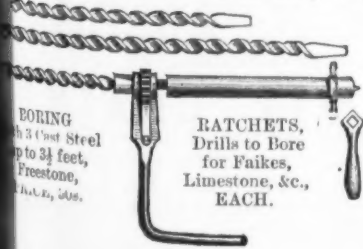
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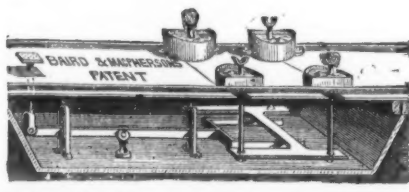
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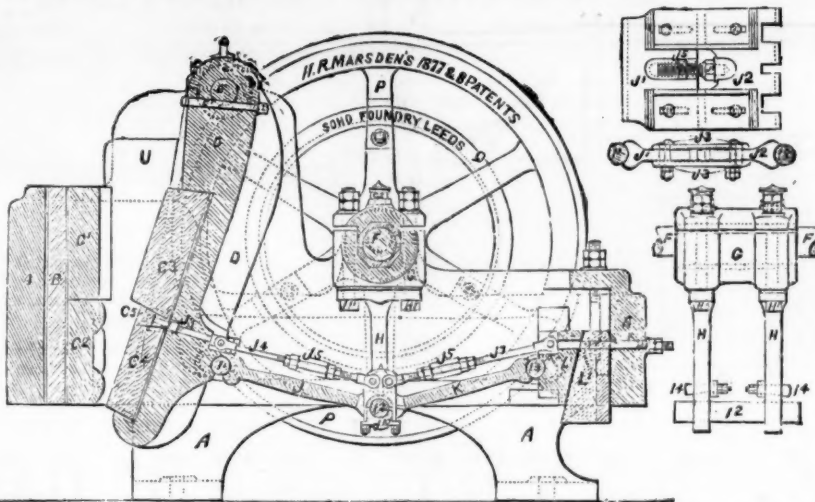
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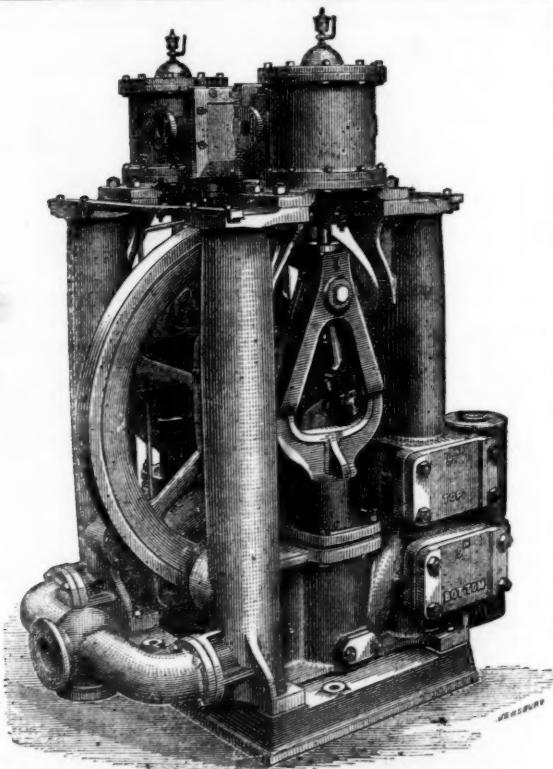
BLAKE'S STONE BREAKER.—Statement made by the
Managing Director of the St. John del Rey Mining
Company, Mr. John Hockin, with regard to the
working of Blake's Stone Breaker, affording
judging of the relative economy of machine and
labour in this kind of work, and also of the cost of
the Stone Breaker to work in difficult places. The
paid to Mr. Marsden for the machine referred to
Hockin was £180, and adding to this the cost of
carriage, and fixing, the aggregate cost to the
of the Breaker in working order was £500. By the
the company is enabled to dispense with the labour
people, the value of which is £600 per annum. The
of working the machine could not be more than
of about five men (the machine requires but one
feed it, so that the rest would be for engine, &c.,
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